LAMPIRAN

Lampiran 1 Harga Bahan Bakar Minyak

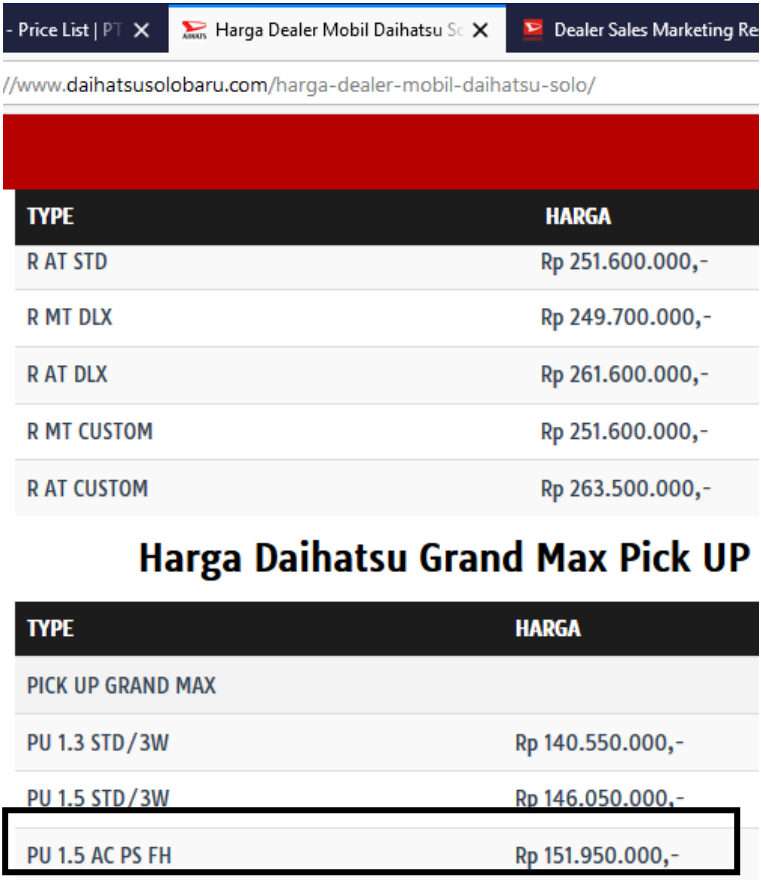
Sumber : Hasil Survei

Lampiran 2 Harga Kendaraan Baru

1. Sedan

Sumber : https://www.toyotasolo.us

2. Utiliti



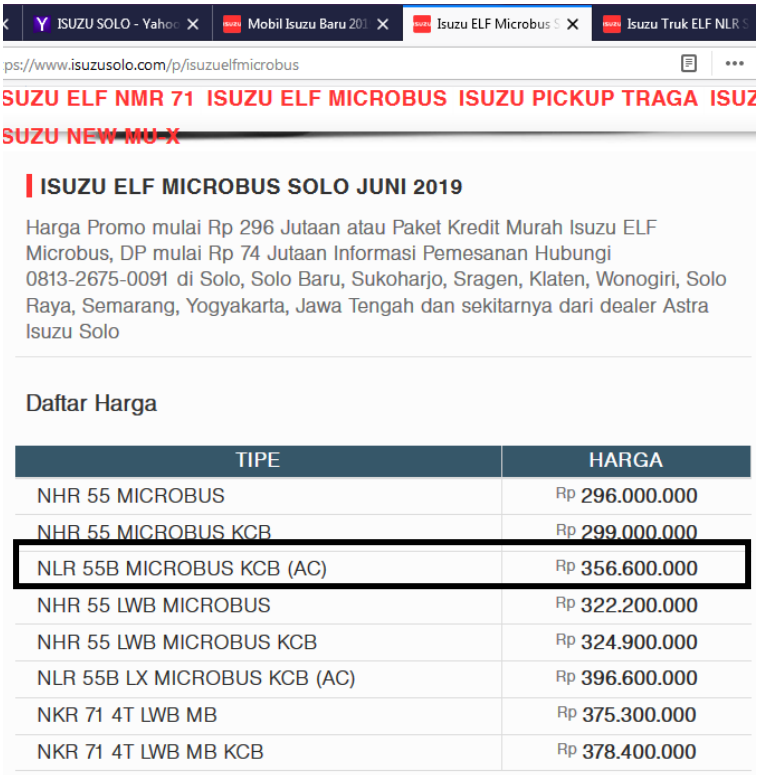
TYPE	HARGA
R AT STD	Rp 251.600.000,-
R MT DLX	Rp 249.700.000,-
R AT DLX	Rp 261.600.000,-
R MT CUSTOM	Rp 251.600.000,-
R AT CUSTOM	Rp 263.500.000,-

Harga Daihatsu Grand Max Pick UP

TYPE	HARGA
PICK UP GRAND MAX	
PU 1.3 STD/3W	Rp 140.550.000,-
PU 1.5 STD/3W	Rp 146.050.000,-
PU 1.5 AC PS FH	Rp 151.950.000,-

Sumber : https://www.daihatsusolobaru.com

3. Bus kecil



TIPE	HARGA
NHR 55 MICROBUS	Rp 296.000.000
NHR 55 MICROBUS KCB	Rp 299.000.000
NLR 55B MICROBUS KCB (AC)	Rp 356.600.000
NHR 55 LWB MICROBUS	Rp 322.200.000
NHR 55 LWB MICROBUS KCB	Rp 324.900.000
NLR 55B LX MICROBUS KCB (AC)	Rp 396.600.000
NKR 71 4T LWB MB	Rp 375.300.000
NKR 71 4T LWB MB KCB	Rp 378.400.000

Sumber : https://www.isuzusolo.com

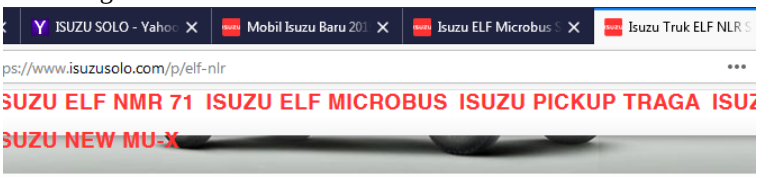
4. Bus Besar

43	FM 350 T/H C/R ABS	1,079,000,000	10 Ban	46,000	167,530,000	1,246,530,000
44	FM 350 PD C/R	1,076,000,000	10 Ban	26,000	166,320,000	1,242,320,000
45	FM 350 PD C/R Mining	1,112,000,000	10 Ban	26,000	168,619,000	1,280,619,000
46	FM 350 PL C/R	1,072,000,000	10 Ban	44,000	168,619,000	1,240,619,000
47	FM 350 PL C/R Mining	1,108,000,000	10 Ban	44,000	168,619,000	1,276,619,000
48	SG 260 T/H	689,000,000	6 Ban	34,000	140,365,500	829,365,500
49	SG 260 T/H ABS	713,000,000	6 Ban	34,000	140,365,500	853,365,500
50	SG 285 T/H C/R	715,000,000	6 Ban	34,000	140,365,500	855,365,500
51	SG 285 T/H C/R ABS	739,000,000	6 Ban	34,000	140,365,500	879,365,500
	KATEGORI BUS					
1	A215	565,000,000	6			694,717,500
2	R260	736,000,000	6 Ban			872,554,000
3	RN 285	856,000,000	6 Ban	14,200	183,623,000	1,039,623,000
4	RN285 Returder M/T	924,000,000	6 Ban	16,000	183,623,000	1,107,623,000
5	RN285 Returder A/T	1,057,000,000	6 Ban	16,000	183,623,000	1,240,623,000
6	FC BUS	460,000,000	6 Ban	10,400	87,791,000	547,791,000
7	FB 130	311,000,000	6 Ban	8,000	110,660,000	421,660,000

1.107.623.000

Sumber : https://www.hino.co.id

5. Truk Ringan



ISUZU TRUK ELF NLR SOLO JUNI 2019

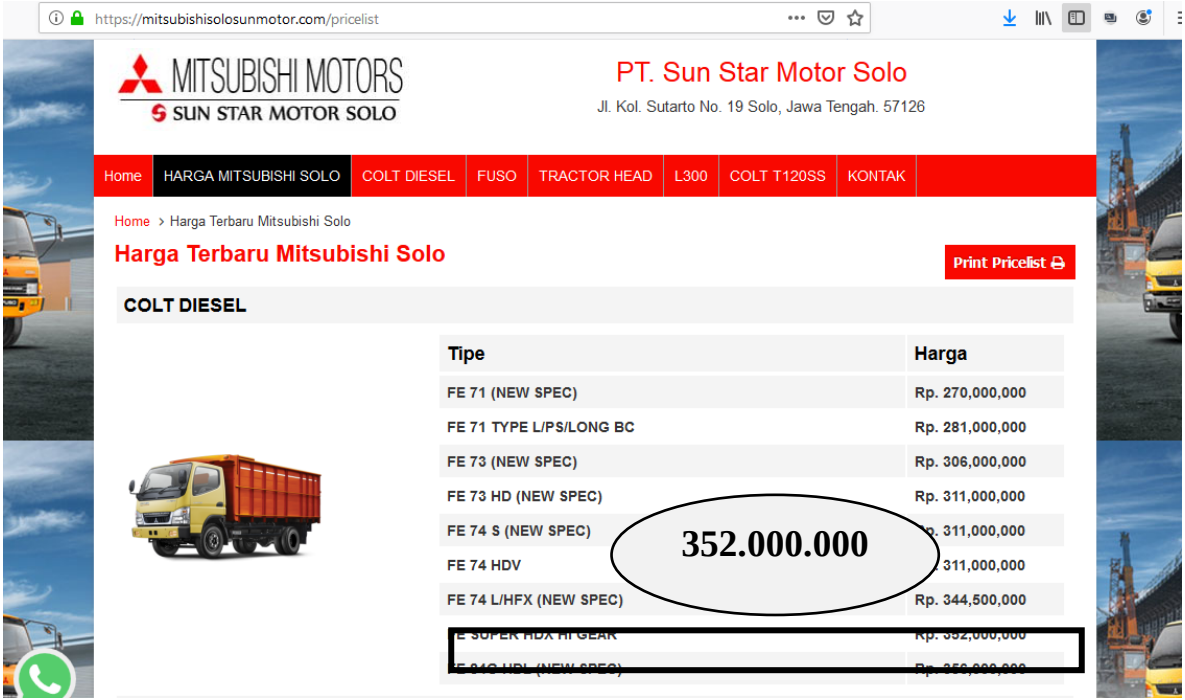
Harga Promo mulai Rp 251 Jutaan atau Paket Kredit Murah Truk Isuzu ELF NLR, DP mulai Rp 63 Jutaan Informasi Pemesanan Hubungi 0813-2675-0091 di Solo, Solo Baru, Sukoharjo, Sragen, Klaten, Wonogiri, Solo Raya, Semarang, Yogyakarta, Jawa Tengah dan sekitarnya dari dealer Astra Isuzu Solo

Daftar Harga

TIPE	HARGA
NLR 55T	Rp 250.500.000
NLR 55TX	Rp 258.400.000
NLR 55TLX	Rp 268.500.000
NLR 55B	Rp 254.400.000
NLR 55BX	Rp 261.400.000
NLR 55BLX	Rp 274.500.000
NLR 71BL	Rp 300.000.000
NLR 71T	Rp 277.500.000
NLR 71TL	Rp 288.500.000

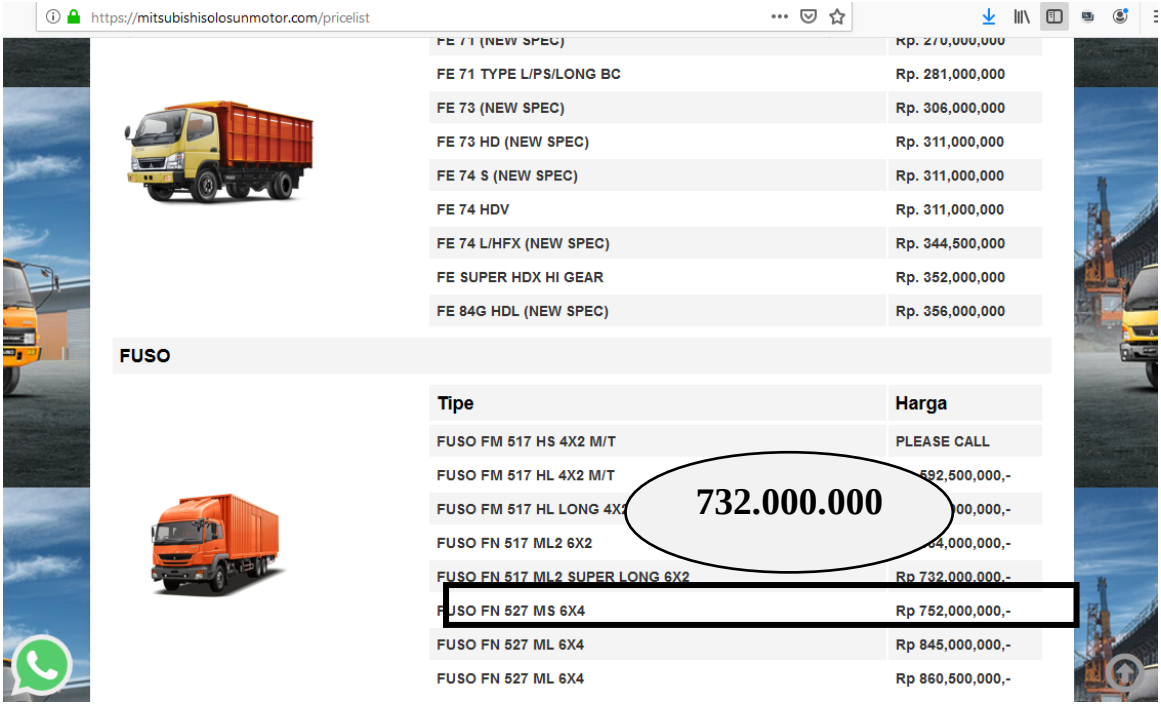
Sumber : https://www.isuzusolo.com

6. Truk Sedang



Sumber : https://mitsubishisolosunmotor.com

7. Truk Berat



Sumber : https://mitsubishisolosunmotor.com

Lampiran 3 Harga Oli

1. Pertamina Prima XP 20w-50 4 liter

Oli Mesin Prima XP 20w - 50 4 lt
Pertamina -04365-

Ulasan

Transaksi Sukses Dari Transaksi

Bagikan

Rp 135.000

Jumlah

1

Catatan untuk Penjual (Opsional)

Contoh: Warna Putih, Ukuran XL, Edisi

0/144 karakter

Cicilan bunga 0% mulai dari Rp 5.625 Bandingkan Cicilan

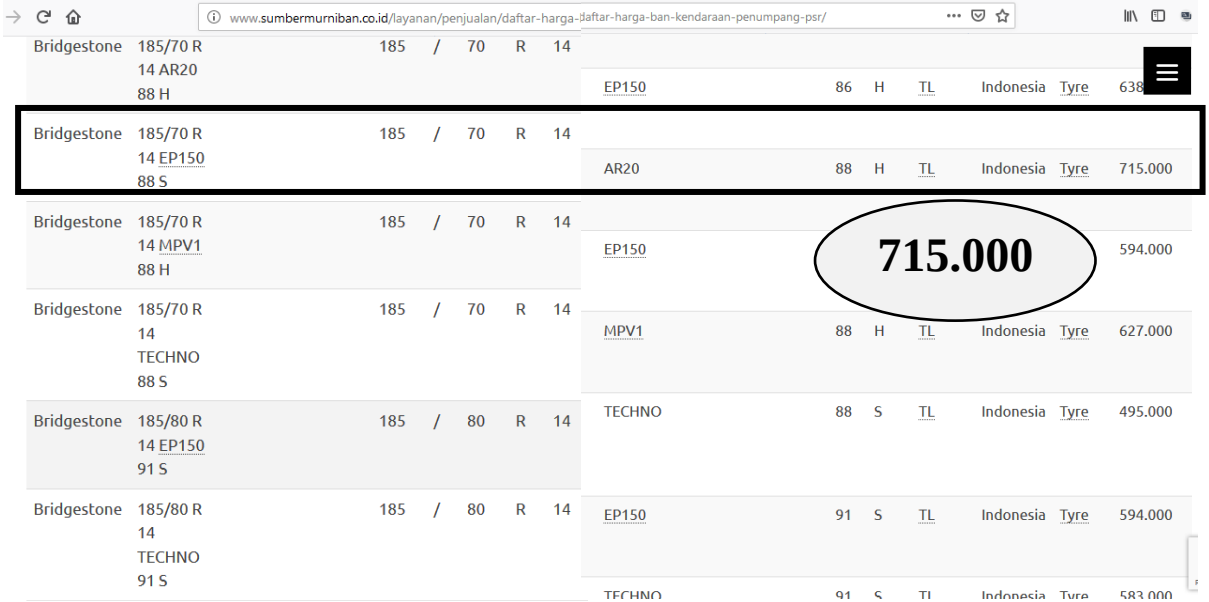
Sumber : Tokopedia

2. Pertamina Meditran SX 40 1 liter

Sumber : Tokopedia

Lampiran 4 Harga Ban

1. Sedan



Bridgestone	185/70 R 14 AR20 88 H	185	/	70	R	14	EP150	86	H	TL	Indonesia	Tyre	638
Bridgestone	185/70 R 14 EP150 88 S	185	/	70	R	14	AR20	88	H	TL	Indonesia	Tyre	715.000
Bridgestone	185/70 R 14 MPV1 88 H	185	/	70	R	14	EP150						594.000
Bridgestone	185/70 R 14 TECHNO 88 S	185	/	70	R	14	MPV1	88	H	TL	Indonesia	Tyre	627.000
Bridgestone	185/80 R 14 EP150 91 S	185	/	80	R	14	TECHNO	88	S	TL	Indonesia	Tyre	495.000
Bridgestone	185/80 R 14 TECHNO 91 S	185	/	80	R	14	EP150	91	S	TL	Indonesia	Tyre	594.000
							TECHNO	91	S	TL	Indonesia	Tyre	583.000

715.000

Sumber : www.sumbermurniban.co.id

2. Utiliti

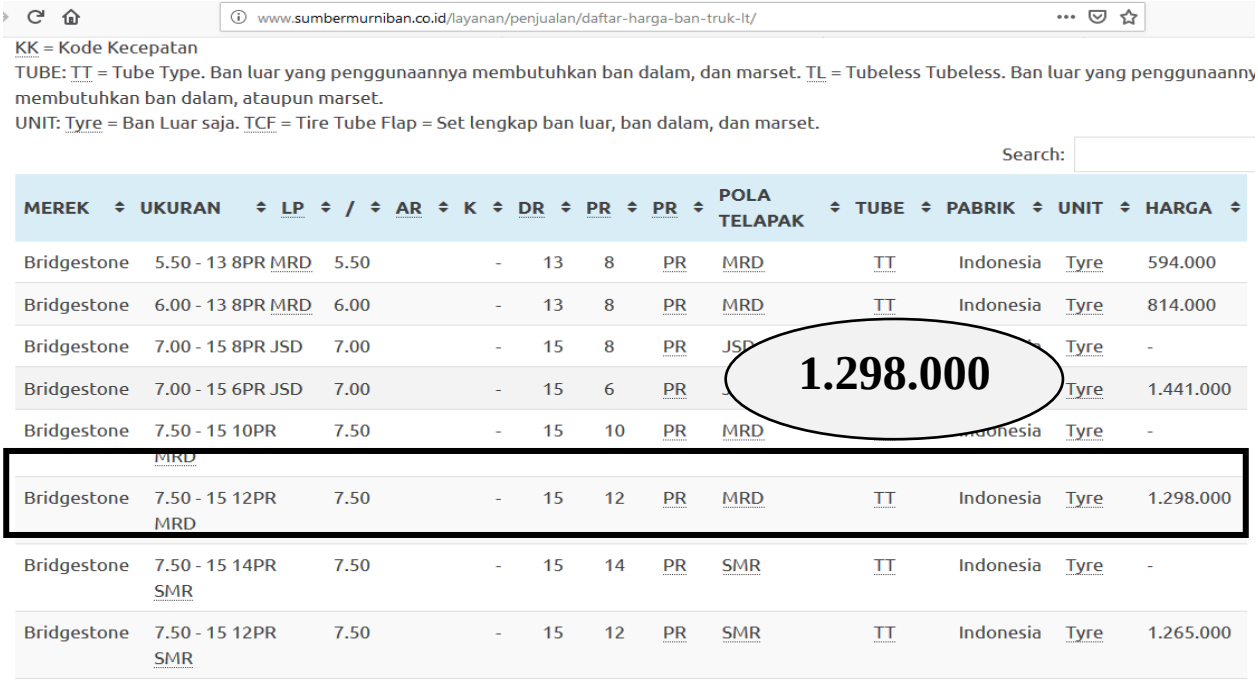
www.sumbermurniban.co.id/layanan/penjualan/daftar-harga-ban-kendaraan-penumpang-psr/

165			R	13	6	PR	R624	91	R	TL	Indonesia	Tyre	506
165			R	13	8	PR	R624	94	R	TL	Indonesia	Tyre	539.000
175	/	70	R	13			EP150	82	S	TL	Indonesia	Tyre	495.000
175	/	70	R	13			TECHNO	82	T			re	451.000
175			R	13	8	PR	R624	97	R	TL	Indonesia	Tyre	638.000
185	/	70	R	13			EP150	86	S	TL	Indonesia	Tyre	550.000

638.000

Sumber : www.sumbermurniban.co.id

3. Bus Kecil



www.sumbermurniban.co.id/layanan/penjualan/daftar-harga-ban-truk-lt/

KK = Kode Kecepatan

TUBE: TT = Tube Type. Ban luar yang penggunaannya membutuhkan ban dalam, dan marset. TL = Tubeless Tubeless. Ban luar yang penggunaanny membutuhkan ban dalam, ataupun marset.

UNIT: Tyre = Ban Luar saja. TCF = Tire Tube Flap = Set lengkap ban luar, ban dalam, dan marset.

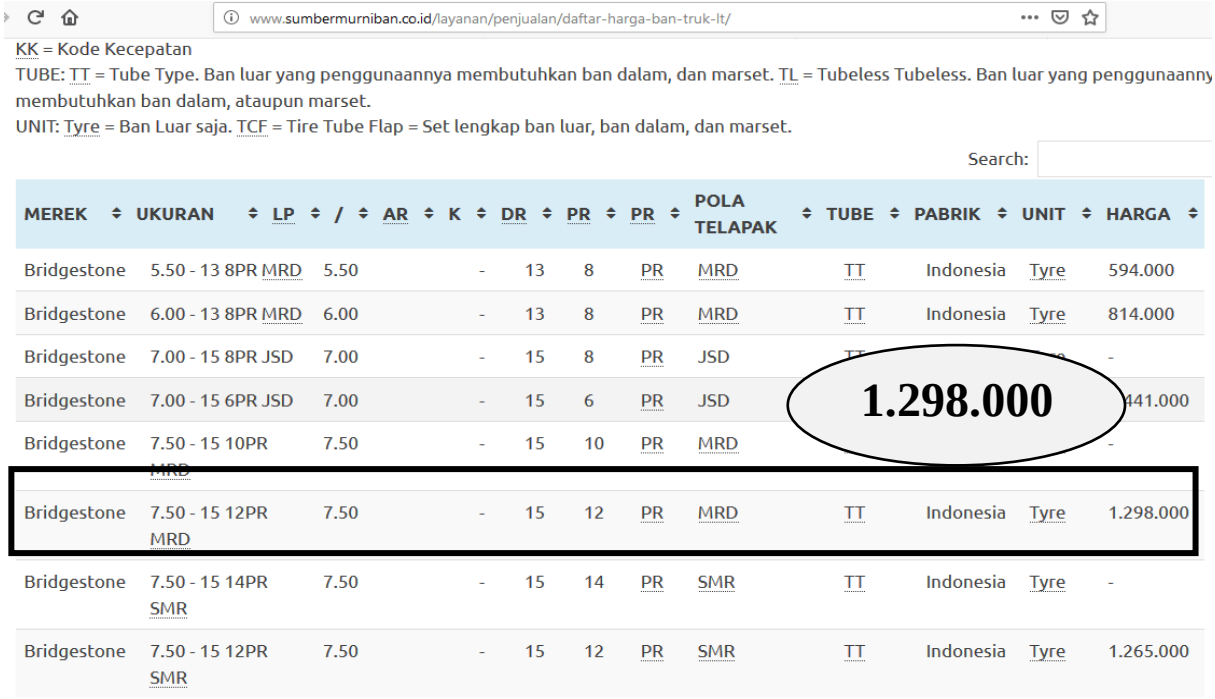
Search:

MEREK	UKURAN	LP	/	AR	K	DR	PR	PR	POLA TELAPAK	TUBE	PABRIK	UNIT	HARGA
Bridgestone	5.50 - 13 8PR MRD	5.50			-	13	8	PR	MRD	TT	Indonesia	Tyre	594.000
Bridgestone	6.00 - 13 8PR MRD	6.00			-	13	8	PR	MRD	TT	Indonesia	Tyre	814.000
Bridgestone	7.00 - 15 8PR JSD	7.00			-	15	8	PR	JSD			Tyre	-
Bridgestone	7.00 - 15 6PR JSD	7.00			-	15	6	PR				Tyre	1.441.000
Bridgestone	7.50 - 15 10PR MRD	7.50			-	15	10	PR	MRD			Tyre	-
Bridgestone	7.50 - 15 12PR MRD	7.50			-	15	12	PR	MRD	TT	Indonesia	Tyre	1.298.000
Bridgestone	7.50 - 15 14PR SMR	7.50			-	15	14	PR	SMR	TT	Indonesia	Tyre	-
Bridgestone	7.50 - 15 12PR SMR	7.50			-	15	12	PR	SMR	TT	Indonesia	Tyre	1.265.000

1.298.000

Sumber : www.sumbermurniban.co.id

4. Bus Besar



www.sumbermurniban.co.id/layanan/penjualan/daftar-harga-ban-truk-lt/

KK = Kode Kecepatan

TUBE: TT = Tube Type. Ban luar yang penggunaannya membutuhkan ban dalam, dan marset. TL = Tubeless Tubeless. Ban luar yang penggunaanny membutuhkan ban dalam, ataupun marset.

UNIT: Tyre = Ban Luar saja. TCF = Tire Tube Flap = Set lengkap ban luar, ban dalam, dan marset.

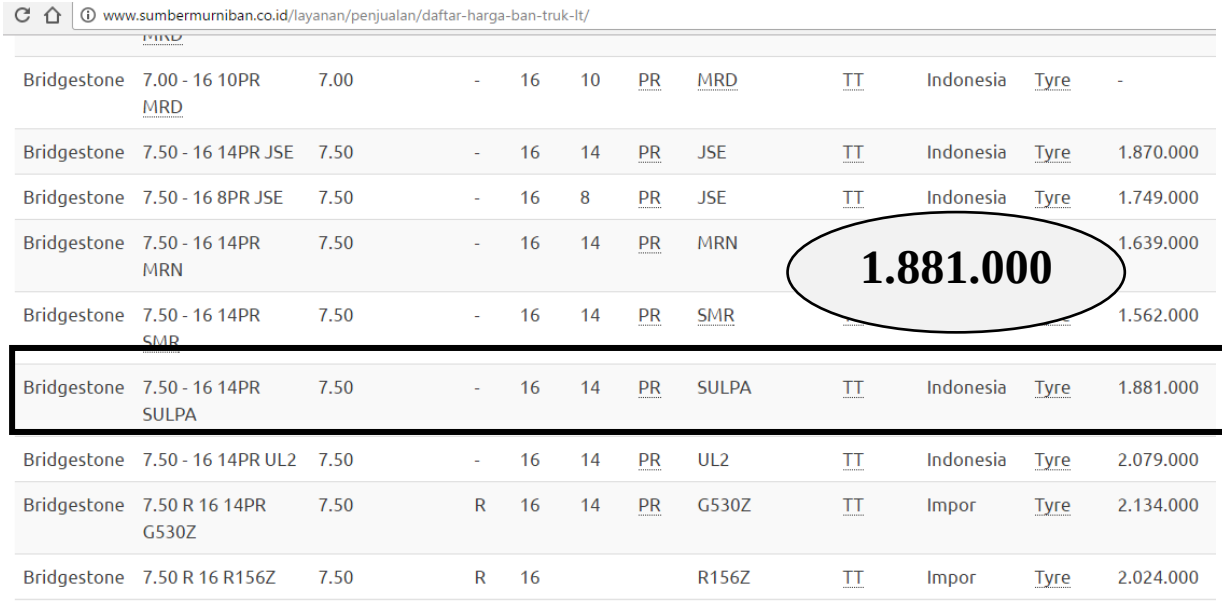
Search:

MEREK	UKURAN	LP	/	AR	K	DR	PR	PR	POLA TELAPAK	TUBE	PABRIK	UNIT	HARGA
Bridgestone	5.50 - 13 8PR MRD	5.50		-		13	8	PR	MRD	TT	Indonesia	Tyre	594.000
Bridgestone	6.00 - 13 8PR MRD	6.00		-		13	8	PR	MRD	TT	Indonesia	Tyre	814.000
Bridgestone	7.00 - 15 8PR JSD	7.00		-		15	8	PR	JSD	TT			-
Bridgestone	7.00 - 15 6PR JSD	7.00		-		15	6	PR	JSD				441.000
Bridgestone	7.50 - 15 10PR MRD	7.50		-		15	10	PR	MRD				-
Bridgestone	7.50 - 15 12PR MRD	7.50		-		15	12	PR	MRD	TT	Indonesia	Tyre	1.298.000
Bridgestone	7.50 - 15 14PR SMR	7.50		-		15	14	PR	SMR	TT	Indonesia	Tyre	-
Bridgestone	7.50 - 15 12PR SMR	7.50		-		15	12	PR	SMR	TT	Indonesia	Tyre	1.265.000

1.298.000

Sumber : www.sumbermurniban.co.id

5. Truk Ringan



www.sumbermurniban.co.id/layanan/penjualan/daftar-harga-ban-truk-lt/

Bridgestone	7.00 - 16 10PR MRD	7.00	-	16	10	PR	MRD	TT	Indonesia	Tyre	-
Bridgestone	7.50 - 16 14PR JSE	7.50	-	16	14	PR	JSE	TT	Indonesia	Tyre	1.870.000
Bridgestone	7.50 - 16 8PR JSE	7.50	-	16	8	PR	JSE	TT	Indonesia	Tyre	1.749.000
Bridgestone	7.50 - 16 14PR MRN	7.50	-	16	14	PR	MRN	TT	Indonesia	Tyre	1.639.000
Bridgestone	7.50 - 16 14PR SMR	7.50	-	16	14	PR	SMR	TT	Indonesia	Tyre	1.562.000
Bridgestone	7.50 - 16 14PR SULPA	7.50	-	16	14	PR	SULPA	TT	Indonesia	Tyre	1.881.000
Bridgestone	7.50 - 16 14PR UL2	7.50	-	16	14	PR	UL2	TT	Indonesia	Tyre	2.079.000
Bridgestone	7.50 R 16 14PR G530Z	7.50	R	16	14	PR	G530Z	TT	Impor	Tyre	2.134.000
Bridgestone	7.50 R 16 R156Z	7.50	R	16			R156Z	TT	Impor	Tyre	2.024.000

1.881.000

Sumber : www.sumbermurniban.co.id

6. Truk Sedang

www.sumbermurniban.co.id/layanan/penjualan/daftar-harga-ban-truk-lt/

Bridgestone	7.00 - 16 10PR MRD	7.00	-	16	10	PR	MRD	TT	Indonesia	Tyre	-
Bridgestone	7.50 - 16 14PR JSE	7.50	-	16	14	PR	JSE	TT		Tyre	1.870.000
Bridgestone	7.50 - 16 8PR JSE	7.50	-	16	8	PR	JSE	TT		Tyre	1.749.000
Bridgestone	7.50 - 16 14PR MRN	7.50	-	16	14	PR	MRN	TT		Tyre	1.639.000
Bridgestone	7.50 - 16 14PR SMR	7.50	-	16	14	PR	SMR	TT	Indonesia	Tyre	1.562.000
Bridgestone	7.50 - 16 14PR SULPA	7.50	-	16	14	PR	SULPA	TT	Indonesia	Tyre	1.881.000
Bridgestone	7.50 - 16 14PR UL2	7.50	-	16	14	PR	UL2	TT	Indonesia	Tyre	2.079.000
Bridgestone	7.50 R 16 14PR G530Z	7.50	R	16	14	PR	G530Z	TT	Impor	Tyre	2.134.000
Bridgestone	7.50 R 16 R156Z	7.50	R	16			R156Z	TT	Impor	Tyre	2.024.000
Bridgestone	8.25 - 16 8PR MRA	8.25	-	16	8	PR	MRA	TT	Indonesia	Tyre	-

1.562.000

Sumber : www.sumbermurniban.co.id

7. Truk Berat

MEREK	UKURAN	LP	/	AR	K	DR	PR	PR	POLA TELAPAK	IB	KK	TUBE	PABRIK	UNIT	HARGA
Bridgestone	8.25 R 15 18PR R187 143 J		8.25			R	15	18	PR	R187	143	J	TT	Impor	TCF	4.357.000
Bridgestone	10.00 R 15 18PR R187 148 J		10.00			R	15	18	PR	R187	148	J	TT	Impor	TCF	6.782.000
Bridgestone	9.00 - 20 14PR EMSA		9.00			-	20	14	PR	EMSA			TT			2.640.000
Bridgestone	9.00 R 20 14PR M857A 140 K		9.00			R	20	14	PR	M857A	140					719.000
Bridgestone	9.00 - 20 14PR VLGN		9.00			-	20	14	PR	VLGN			TT		Tyre	3.553.000
Bridgestone	10.00 - 20 16PR EMLS		10.00			-	20	16	PR	EMLS			TT	Indonesia	Tyre	3.223.000
Bridgestone	10.00 - 20 16PR EMSA		10.00			-	20	16	PR	EMSA			TT	Indonesia	Tyre	3.531.000
Bridgestone	10.00 R 20 16PR G611AZ 148 J		10.00			R	20	16	PR	G611AZ	148	J	TT	Impor	TCF	6.378.000
Bridgestone	10.00 R 20 16PR L317Z 146 G		10.00			R	20	16	PR	L317Z	146	G	TT	Impor	TCF	9.339.000

3.223.000

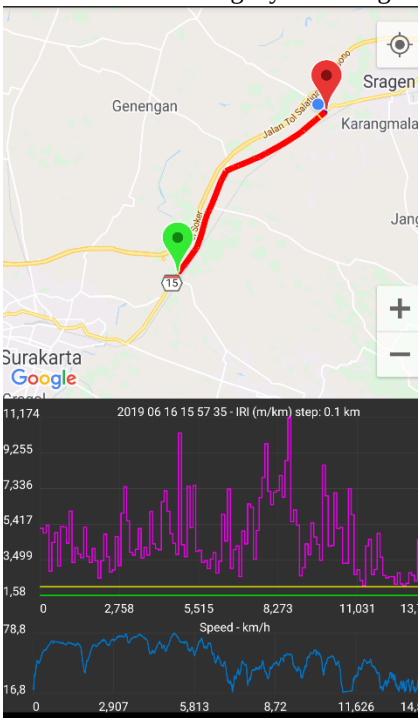
Sumber : www.sumbermurniban.co.id

Lampiran 5 Tarif Tol

Sumber : Hasil Survei

Lampiran 6 Tingkat Kekasaran Jalan *International Roughnes Index* (IRI)

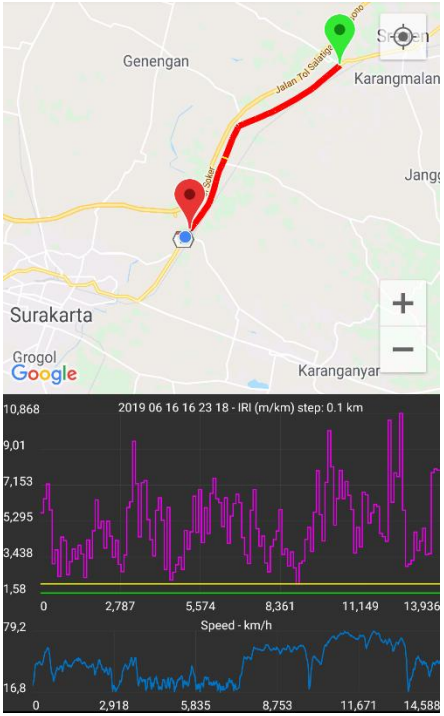
1. Jalan Arteri Karanganyar ke Sragen




```
Recording: 2019 06 16 15 57
35
IRI: 4,61 m/km
PSR Avg: 1,55
Distance: 13,7882 km
Duration: 1.258 sec
GPS Points: 1.057
Accelerometer Pts: 211.951
Accelerometer Rate: 168 hz
Graph Points: 5.046
Max ACC Gap: 122,0200 sec
ACC Gaps > .1 sec: 14
Max GPS Gap: 123,00 sec
GPS Gaps > 1.75 sec: 14
Speed Max: 78,80 km/h
Speed Min: 16,85 km/h
Speed Avg: 46,99 km/h
Segment Length: 0.1 km
Green Limit: 1.58
Yellow Limit: 2.05
Number of Segments: 137
Green Segments: 0 (,0%)
Yellow Segments: 1 (,7%)
Red Segments: 136 (99,3%)
Date: 2019/06/16
Time: 15:57:38
```

Sumber : Hasil Survei

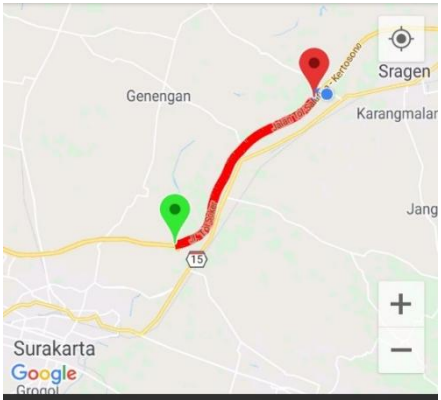
2. Jalan Arteri Sragen ke Karanganyar

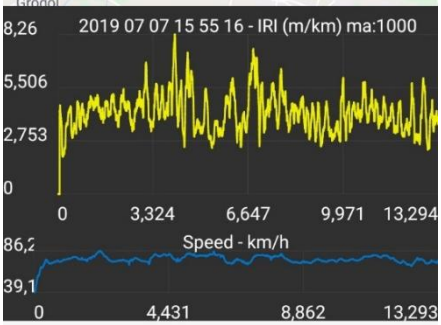



```
Recording: 2019 06 16 16 23
18
IRI: 5,09 m/km
PSR Avg: 1,36
Distance: 13,9357 km
Duration: 1.362 sec
GPS Points: 1.205
Accelerometer Pts: 241.712
Accelerometer Rate: 177 hz
Graph Points: 5.035
Max ACC Gap: 53,0020 sec
ACC Gaps > .1 sec: 20
Max GPS Gap: 54,00 sec
GPS Gaps > 1.75 sec: 23
Speed Max: 79,20 km/h
Speed Min: 16,85 km/h
Speed Avg: 41,65 km/h
Segment Length: 0.1 km
Green Limit: 1.58
Yellow Limit: 2.05
Number of Segments: 139
Green Segments: 0 (,0%)
Yellow Segments: 1 (,7%)
Red Segments: 138 (99,3%)
Date: 2019/06/16
Time: 16:23:19
```

Sumber : Hasil Survei

3. Jalan Tol Karanganyar ke Sragen

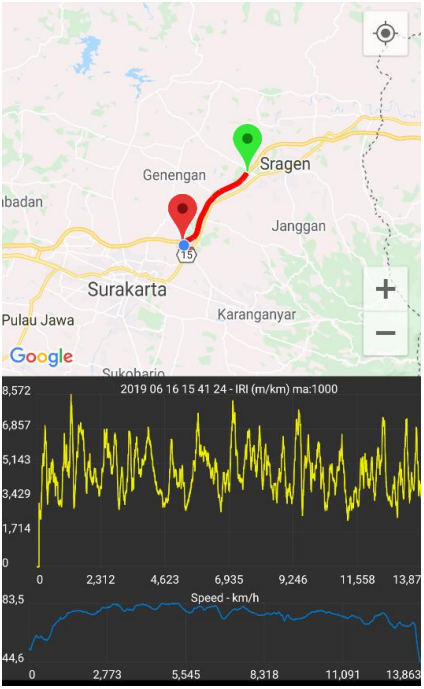





```
Recording: 2019 07 07 15 55
16
IRI: 4,20 m/km
PSR Avg: 1,67
Distance: 13,2985 km
Duration: 629 sec
GPS Points: 630
Accelerometer Pts: 125.916
Accelerometer Rate: 200 hz
Graph Points: 5.036
Max ACC Gap: ,0900 sec
ACC Gaps > .1 sec: 0
Max GPS Gap: 1,09 sec
GPS Gaps > 1.75 sec: 0
Speed Max: 86,21 km/h
Speed Min: 39,05 km/h
Speed Avg: 76,13 km/h
Segment Length: 0.1 km
Green Limit: 1.58
Yellow Limit: 2.05
Number of Segments: 132
Green Segments: 0 (,0%)
Yellow Segments: 0 (,0%)
Red Segments: 132 (100,0%)
Date: 2019/07/07
Time: 15:55:16
```

Sumber : Hasil Survei

4. Jalan Tol Sragen ke Karanganyar




```
Recording: 2019 06 16 15 41
24
IRI: 4,75 m/km
PSR Avg: 1,46
Distance: 13,8729 km
Duration: 666 sec
GPS Points: 668
Accelerometer Pts: 135.078
Accelerometer Rate: 202 hz
Graph Points: 5.002
Max ACC Gap: ,0690 sec
ACC Gaps > .1 sec: 0
Max GPS Gap: 3,61 sec
GPS Gaps > 1.75 sec: 1
Speed Max: 83,52 km/h
Speed Min: 44,57 km/h
Speed Avg: 74,87 km/h
Segment Length: 0.1 km
Green Limit: 1.58
Yellow Limit: 2.05
Number of Segments: 138
Green Segments: 0 (,0%)
Yellow Segments: 0 (,0%)
Red Segments: 138 (100,0%)
Date: 2019/06/16
Time: 15:41:25
```

Sumber : Hasil Survei

Lampiran 7 Penggolongan Kendaraan Pada Jalan Tol

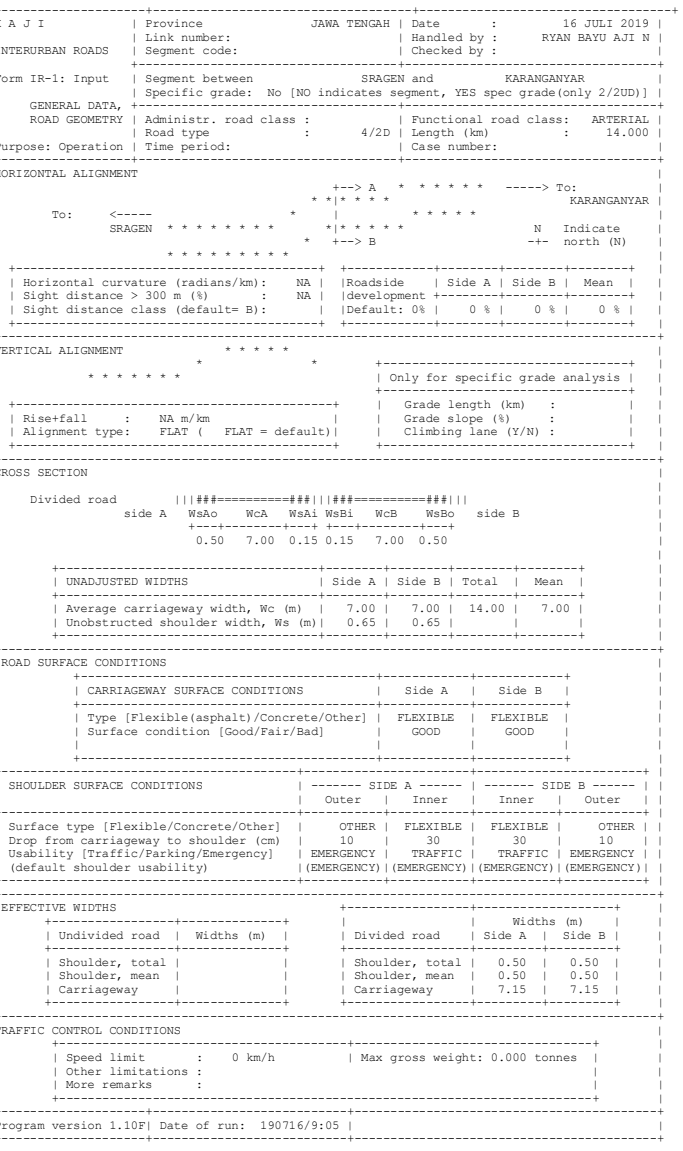
GOLONGAN JENIS KENDARAAN BERMOTOR PADA JALAN TOL YANG SUDAH BEROPERAS

Berdasarkan Kepmen PU No 370/KPTS/M/2007

Golongan	Jenis Kendaraan
Golongan I	Sedan, Jip, Pick Up/Truk Kecil, dan Bus
Golongan II	Truk dengan 2 (dua) gandar
Golongan III	Truk dengan 3 (tiga) gandar
Golongan IV	Truk dengan 4 (empat) gandar
Golongan V	Truk dengan 5 (lima) gandar
Golongan VI	Kendaraan bermotor roda 2 (dua)

Sumber : bpjt.pu.go.id

Lampiran 8 Analisis Hasil Software KAJI Jalan Arteri Senin Pagi



KAJI -- INTERURBAN ROADS	Province: JAWA TENGAH	Date: 16 JULI 2019	
	Link number:	Handled by: RYAN BAYU AJI N	
Form IR-2: Input	Segment code:	Checked by:	
TRAFFIC FLOW, SIDE FRICTION	Administr. road class :	Functional road class: ARTERIAL	
	Road type : 4/2D	Length (km) : 14.000	
Purpose: Operation	Time period :	Case number:	

TRAFFIC DATA:

Type of traffic data (CLass/AAdt/UNclass)	ANNUAL AVERAGE DAILY TRAFFIC: AADT (veh/day)	K-factor (default: 0.11)	DIRECTIONAL SPLIT: Dir1 - Dir2 (default: 50 - 50)	NA - NA %
CLASSIFIED-HOURLY				

Traffic Composition(%)	LV (%)	MHV (%)	LB (%)	LT (%)	MC (%)	Total (%)
User values (normal values)	16.82 (57.0)	3.506 (23.0)	0.408 (7.0)	1.957 (4.0)	77.30 (9.0)	100.0 (100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck
MC = MotorCycle

Traffic flow data for whole segment analysis:

Row	Dir- tion	Light Vehicle rec- pce,1= 1.00 pce,2= 1.00	Med Heavy Veh pce,1= 1.30 pce,2= 1.30	Large Bus pce,1= 1.50 pce,2= 1.50	Large Truck pce,1= 2.00 pce,2= 2.00	MotorCycle pce,1= 0.50 pce,2= 0.50	Total flow Q Split		
		veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	(%)	veh/h	pcu/h
2	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
3	Dir1	350	350	88	114	12	18	39	78	1816	908	49.59	2305	1468
4	Dir2	432	432	75	98	7	11	52	104	1777	889	50.40	2343	1534
5	1+2	782	782	163	212	19	29	91	182	3593	1797		4648	3002
6	Note. If specific grade then dir 1 = uphill, dir 2= downhill					Directional split, SP= Q1/(Q1+Q2)=						49.5%	48.9%
7						Pcu-factor, Fpcu =							0.645

SIDE FRICTION CLASS: If detailed data are available, use first table to determine weighted frequency of events and then go to second table. If not, use second table only.

1. Determination of frequency of events

Calculation of weighted frequency of events per hour and 200 m of the studied road segment.	Side friction type of events (20)	Symbol (21)	Weighting factor (22)	Frequency of events (23)	Weighted frequency (24)
Frequencies are for both sides of the road.	Pedestrians	PED	0.6	NA / h,200m	NA
	Parking, stopping veh.	PSV	0.8	NA / h,200m	NA
	Entry+exit of vehicles	EEV	1.0	NA / h,200m	NA
	Slow-moving vehicles	SMV	0.4	NA / h	NA
				Total:	NA

2. Determination of side friction class

Weighted frequency of events (30)	Typical conditions	Side friction class
< 50	Rural, agriculture or undeveloped with very few activities	VL= very low
50 - 149	Rural, some roadside buildings and some activities	L= low
150 - 249	Village, residential activities	M= medium
250 - 349	Village, some market activities	H= high
> 350	Almost urban, market and business activities	VH= very high

For current case indicate side friction class: L (L is default)

Program version 1.10F	Date of run: 190716/9:05

KAJI -- INTERURBAN ROADS	Province: JAWA TENGAH	Date: 16 JULI 2019
	Link number:	Handled by: RYAN BAYU AJI N
Form IR-3: Analysis	Segment code:	Checked by:
SPEED, CAPACITY	Administr. road class :	Functional road class: ARTERIAL
	Road type : 4/2D	Length (km) : 14.000
Purpose: Operation	Time period :	Case number:

FREE FLOW SPEEDS.

Option to enter other free flow speeds: No

Di-rec-tion	Base free-flow speed FVo (km/h) for different vehicles					Carriage-way width (m)	FVo+FVw Light	Adjustment factors adjust-ment, FVw (km/h)	vehicle Side friction Tab B3:1	Land use Road func Tab B4:1	Actual free-flow speeds, km/h FFVlv = (FVo+FVw)*FFVsf*FFVrc Light (4*5*6)				
	Table B-1:1 or B-1:2					Tab B2:1 (2)+(3)		FFVsf	FFVrc	vehicle	Other vehicle types				
	LV (2)	MHV	LB	LT	MC	(km/h) (3)	(km/h) (4)	(5)	(6)	(7)	MHV	LB	LT	MC	
1	78.0	65.0	81.0	62.0	64.0	0.6	78.6	0.980	1.000	77.02	64.19	79.99	61.22	63.20	
2	78.0	65.0	81.0	62.0	64.0	0.6	78.6	0.980	1.000	77.02	64.19	79.99	61.22	63.20	

Comments: Table B-1:1 used to get base free flow speed!

User FFV, dir1: None!
dir2: None!

CAPACITY

Direc-tion	Base Capacity Co (11)	Adjustment factors for capacity: Carriageway width FCw Table C-2:1 (12)	Directional split FCsp Table C-3:1 (13)	Side friction FCsf Table C-4:1 (14)	Actual capacity, C = Co*FCw*FCsp*FCsf pcu/h (11)*(12)*(13)*(14) (15)
1	3800	1.009	1.000	0.960	3681
2	3800	1.009	1.000	0.960	3681

ACTUAL SPEED and TRAVEL TIME for light vehicles — Only 2/2UD roads

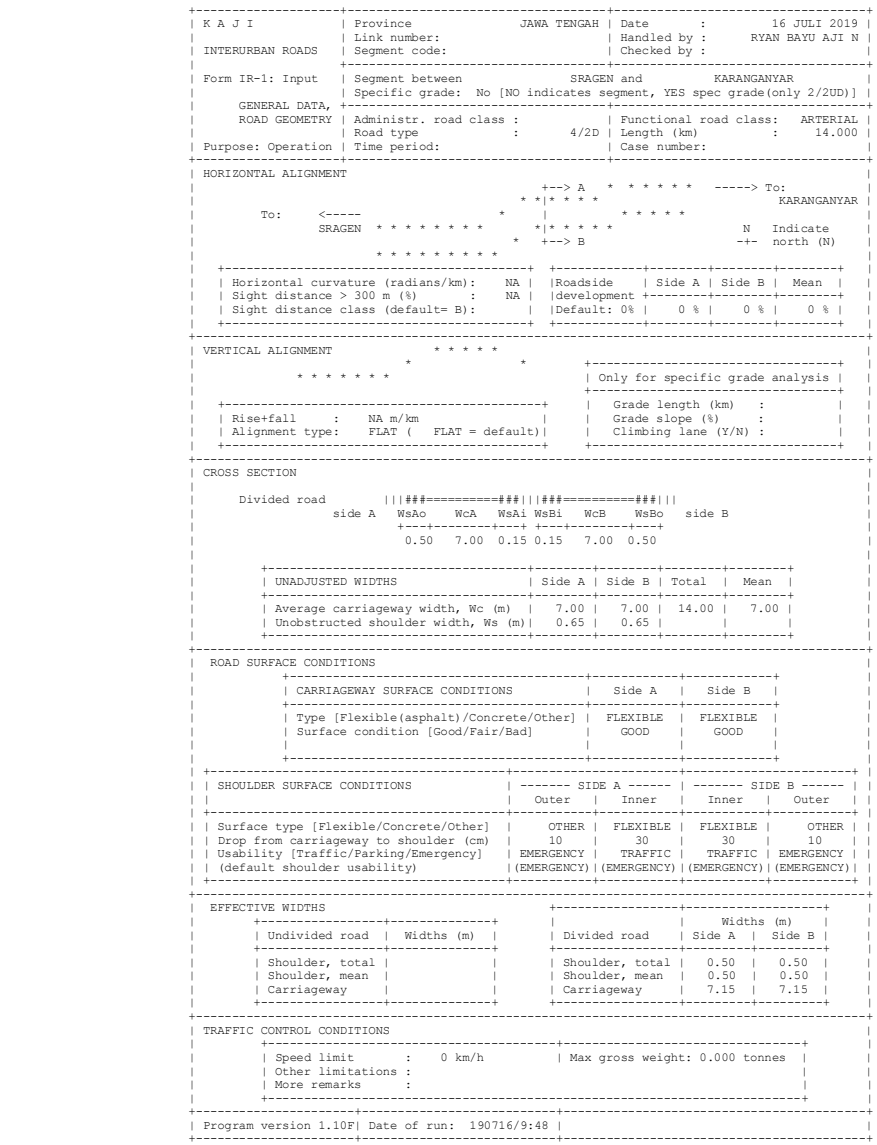
Di-rec-tion	Traffic flow, Q Form IR-2 pcu/h (21)/(15) (21)	Degree of saturation DS=Q/C Fig D2:1/:2 (22)	Actual speed,Vlv km/h (23)	Road segment length, L km (24)	Travel time,TT (24/23) sec (25)	ACTUAL SPEEDS for other vehicle types km/h MHV	LB	LT	MC	Degree of rec-tion DB Fig D3:1 (31)	bunching
1	1468	0.399	69.18	14.000	728.485	57.65	71.84	54.99	56.76		
2	1534	0.417	68.72	14.000	733.322	57.27	71.37	54.63	56.39		

Space for user remark:

Program version 1.10F | Date of run: 190716/9:05

Sumber : Hasil Analisis Software KAJI (2019)

Lampiran 9 Analisis Hasil Software KAJI Jalan Arteri Senin Siang



KAJI -- INTERURBAN ROADS	Province: JAWA TENGAH	Date: 16 JULI 2019	
	Link number:	Handled by: RYAN BAYU AJI N	
Form IR-2: Input	Segment code:	Checked by:	
TRAFFIC FLOW, SIDE FRICTION	Administr. road class :	Functional road class: ARTERIAL	
	Road type : 4/2D	Length (km) : 14.000	
Purpose: Operation	Time period :	Case number:	

TRAFFIC DATA:

Type of traffic data	ANNUAL AVERAGE DAILY TRAFFIC	DIRECTIONAL SPLIT
	AADT / K-factor	Dir1 - Dir2
CLASSIFIED-HOURLY	(veh/day) (default: 0.11)	(default: 50 - 50)
(CLass/AAdt/UNclass)		NA - NA %

Traffic Composition(%)	LV (%)	MHV (%)	LB (%)	LT (%)	MC (%)	Total (%)
User values	25.30	6.787	0.719	3.472	63.71	100.0
(normal values)	(57.0)	(23.0)	(7.0)	(4.0)	(9.0)	(100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck
MC = MotorCycle

Traffic flow data for whole segment analysis:

Row	Di- tion	Light Vehicle pce,1= 1.00 pce,2= 1.00 veh/h	pcu/h	Med Heavy Veh pce,1= 1.57 pce,2= 1.53 veh/h	pcu/h	Large Bus pce,1= 1.65 pce,2= 1.60 veh/h	pcu/h	Large Truck pce,1= 2.42 pce,2= 2.33 veh/h	pcu/h	MotorCycle pce,1= 0.77 pce,2= 0.73 veh/h	pcu/h	Total flow Q Split (%)	veh/h	pcu/h
2	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
3	Dir1	420	420	121	190	11	18	53	128	1069	822	52.36	1674	1578
4	Dir2	389	389	96	147	12	19	58	135	968	707	47.63	1523	1397
5	1+2	809	809	217	337	23	37	111	263	2037	1529		3197	2975
6	Note. If specific grade then dir 1 = uphill, dir 2= downhill							Directional split, SP= Q1/(Q1+Q2)=					52.3%	53.0%
7								Pcu-factor, Fpcu =						0.930

SIDE FRICTION CLASS: If detailed data are available, use first table to determine weighted frequency of events and then go to second table. If not, use second table only.

1. Determination of frequency of events

Calculation of weighted frequency of events per hour and 200 m of the studied road segment.	Side friction type of events (20)	Symbol (21)	Weighting factor (22)	Frequency of events (23)	Weighted frequency (24)
Frequencies are for both sides of the road.	Pedestrians	PED	0.6	NA / h,200m	NA
	Parking, stopping veh.	PSV	0.8	NA / h,200m	NA
	Entry+exit of vehicles	EEV	1.0	NA / h,200m	NA
	Slow-moving vehicles	SMV	0.4	NA / h	NA
				Total:	NA

2. Determination of side friction class

Weighted frequency of events (30)	Typical conditions	Side friction class
< 50	Rural, agriculture or undeveloped with very few activities	VL= very low
50 - 149	Rural, some roadside buildings and some activities	L= low
150 - 249	Village, residential activities	M= medium
250 - 349	Village, some market activities	H= high
> 350	Almost urban, market and business activities	VH= very high
For current case indicate side friction class:		L (L is default)

Program version 1.10F	Date of run: 190716/9:48

KAJI -- INTERURBAN ROADS	Province: JAWA TENGAH	Date: 16 JULI 2019	
	Link number:	Handled by: RYAN BAYU AJI N	
Form IR-3: Analysis	Segment code:	Checked by:	
SPEED, CAPACITY	Administr. road class :	Functional road class: ARTERIAL	
	Road type : 4/2D	Length (km) : 14.000	
Purpose: Operation	Time period :	Case number:	

FREE FLOW SPEEDS.

Option to enter other free flow speeds: No

Di-rec-tion	Base free-flow speed FVo (km/h) for different vehicles					Carriage-way adjust-ment, FVw	FVo+FVw Adjustment factors for vehicle friction Tab B2:1|(2)+(3)		Side Road func Tab B3:1	Land use Tab B4:1	Actual free-flow speeds, km/h FFVlv = (FVo+FVw)*FFVsf*FFVrc Light (4*5*6)				
	Table B-1:1 or B-1:2											Other vehicle types			
	LV (2)	MHV	LB	LT	MC	(km/h) (3)	(km/h) (4)	FFVsf (5)	FFVrc (6)	vehicle (7)	MHV	LB	LT	MC
1	78.0	65.0	81.0	62.0	64.0	0.6	78.6	0.980	1.000	77.02	64.19	79.99	61.22	63.20
2	78.0	65.0	81.0	62.0	64.0	0.6	78.6	0.980	1.000	77.02	64.19	79.99	61.22	63.20

Comments: Table B-1:1 used to get base free flow speed!

User FFV, dir1: None!
dir2: None!

CAPACITY

Direc-tion	Base Capacity Co pcu/h (11)	Adjustment factors for capacity: Carriageway width FCw Table C-2:1 (12)	Directional split FCsp Table C-3:1 (13)	Side friction FCsf Table C-4:1 (14)	Actual capacity, C = Co*FCw*FCsp*FCsf pcu/h (11)*(12)*(13)*(14) (15)
1	3800	1.009	1.000	0.960	3681
2	3800	1.009	1.000	0.960	3681

ACTUAL SPEED and TRAVEL TIME for light vehicles — Only 2/2UD roads

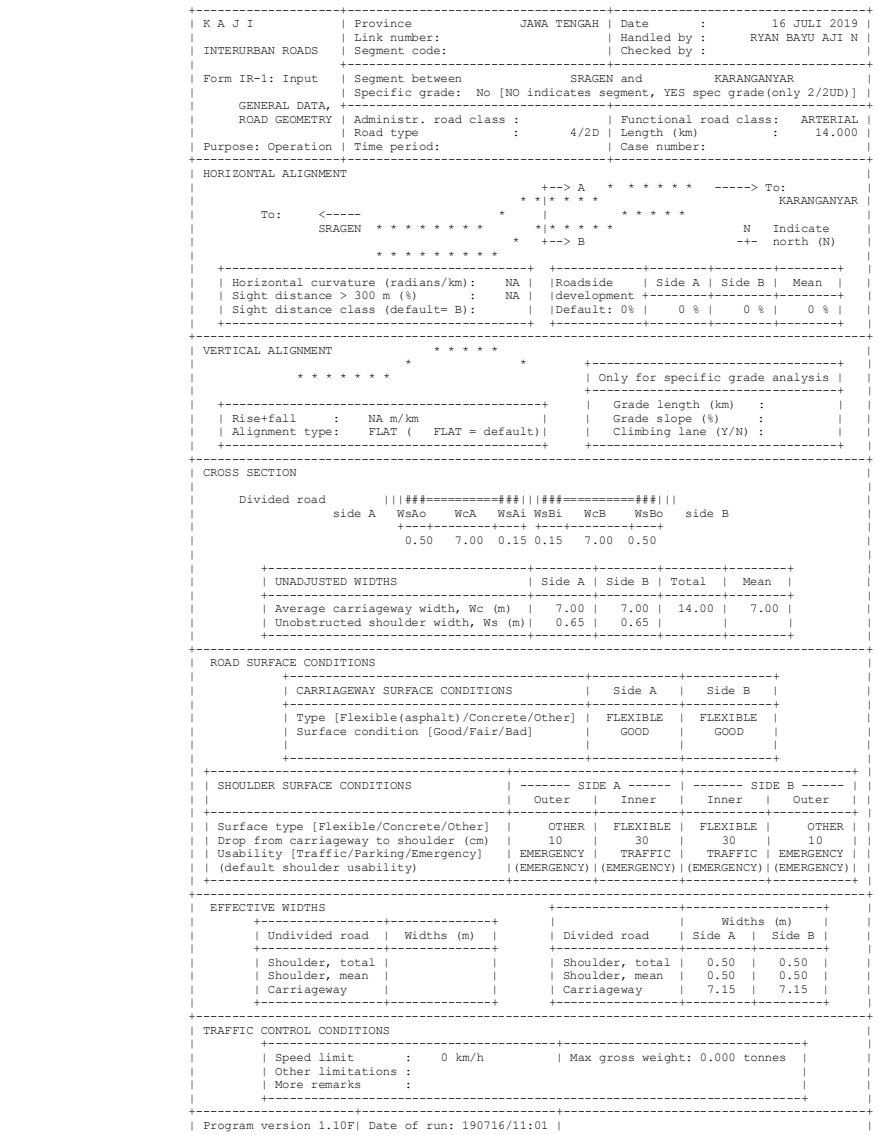
Di-rec-tion	Traffic flow, Q Form IR-2 pcu/h (21)	Degree of saturation DS=Q/C (21)/(15)	Actual speed,Vlv Fig D2:1/:2 km/h (22)	Road segment length, L (23)	Travel time,TT (24)/(23) km (24)	ACTUAL SPEEDS for other vehicle types km/h MHV (25)	LB	LT	MC	Degree of rec-tion DB Fig D3:1 (31)	bunching
1	1578	0.429	68.41	14.000	736.644	57.01	71.04	54.38	56.13		
2	1397	0.380	69.66	14.000	723.432	58.05	72.34	55.37	57.16		

Space for user remark:

Program version 1.10F | Date of run: 190716/9:48

Sumber : Hasil Analisis Software KAJI (2019)

Lampiran 10 Analisis Hasil Software KAJI Jalan Arteri Senin Sore



KAJI -- INTERURBAN ROADS Form IR-2: Input	Province: JAWA TENGAH Link number: Segment code:	Date: 16 JULI 2019 Handled by: RYAN BAYU AJI N Checked by:	
TRAFFIC FLOW, SIDE FRICTION Purpose: Operation	Administr. road class : Road type : 4/2D Time period :	Functional road class: ARTERIAL Length (km) : 14.000 Case number:	

TRAFFIC DATA:

Type of traffic data CLASSIFIED-HOURLY (CLass/AAdt/UNclass)	ANNUAL AVERAGE DAILY TRAFFIC AADT (veh/day)	K-factor (default: 0.11)	DIRECTIONAL SPLIT Dir1 - Dir2 (default: 50 - 50) NA - NA %

Traffic Composition(%)	LV (%)	MHV (%)	LB (%)	LT (%)	MC (%)	Total (%)
User values (normal values)	15.99 (57.0)	3.468 (23.0)	0.506 (7.0)	2.306 (4.0)	77.72 (9.0)	100.0 (100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck
MC = MotorCycle

Traffic flow data for whole segment analysis:

Row	Dir-tion	Light Vehicle pce,1= 1.00 pce,2= 1.00 veh/h	pcu/h	Med Heavy Veh pce,1= 1.30 pce,2= 1.30 veh/h	pcu/h	Large Bus pce,1= 1.50 pce,2= 1.50 veh/h	pcu/h	Large Truck pce,1= 2.00 pce,2= 2.00 veh/h	pcu/h	MotorCycle pce,1= 0.50 pce,2= 0.50 veh/h	pcu/h	Total flow Q Split (%)	veh/h	pcu/h
1	1+2	853	853	185	240	27	41	123	246	4145	2073		5333	3453
2	Dir1	413	413	94	122	14	21	63	126	2225	1113	52.67	2809	1795
3	Dir2	440	440	91	118	13	20	60	120	1920	960	47.32	2524	1658
4														
5														
6	Note. If specific grade then dir 1 = uphill, dir 2= downhill							Directional split, SP= Q1/(Q1+Q2)=					52.6%	51.9%
7								Pcu-factor, Fpcu =						0.647

SIDE FRICTION CLASS: If detailed data are available, use first table to determine weighted frequency of events and then go to second table. If not, use second table only.

1. Determination of frequency of events

Calculation of weighted frequency of events per hour and 200 m of the studied road segment.	Side friction type of events (20)	Symbol (21)	Weighting factor (22)	Frequency of events (23)	Weighted frequency (24)
Frequencies are for both sides of the road.	Pedestrians	PED	0.6	NA / h,200m	NA
	Parking, stopping veh.	PSV	0.8	NA / h,200m	NA
	Entry+exit of vehicles	EEV	1.0	NA / h,200m	NA
	Slow-moving vehicles	SMV	0.4	NA / h	NA
				Total:	NA

2. Determination of side friction class

Weighted frequency of events (30)	Typical conditions	Side friction class
< 50	Rural, agriculture or undeveloped with very few activities	VL= very low
50 - 149	Rural, some roadside buildings and some activities	L= low
150 - 249	Village, residential activities	M= medium
250 - 349	Village, some market activities	H= high
> 350	Almost urban, market and business activities	VH= very high

For current case indicate side friction class: L (L is default)

Program version 1.10F	Date of run: 190716/11:01

KAJI -- INTERURBAN ROADS	Province: JAWA TENGAH	Date: 16 JULI 2019	
	Link number:	Handled by: RYAN BAYU AJI N	
Form IR-3: Analysis	Segment code:	Checked by:	
SPEED, CAPACITY	Administr. road class :	Functional road class: ARTERIAL	
	Road type : 4/2D	Length (km) : 14.000	
Purpose: Operation	Time period :	Case number:	

FREE FLOW SPEEDS.

Option to enter other free flow speeds: No

Di-rec-tion	Base free-flow speed FVo (km/h) for different vehicles					Carriage-way adjust-ment, FVw	FVo+FVw vehicle width (m)	Adjustment factors Light friction Tab B3:1	Side Road func Tab B4:1	Actual free-flow speeds, km/h Land use Light (4*5*6)			
	Table B-1:1 or B-1:2										Other vehicle types		
	LV (2)	MHV	LB	LT	MC	(km/h)	(km/h)	Tab B2:1 (3)	(2)+(3) (4)	FFVsf (5)	FFVrc (6)	vehicle (7)	MHV	LB	LT	MC
1	78.0	65.0	81.0	62.0	64.0	0.6	78.6	0.980	1.000	77.02		64.19	79.99	61.22	63.20
2	78.0	65.0	81.0	62.0	64.0	0.6	78.6	0.980	1.000	77.02		64.19	79.99	61.22	63.20

Comments: Table B-1:1 used to get base free flow speed!

User FFV, dir1: None!
dir2: None!

FFVlv = (FVo+FVw)*FFVsf*FFVrc

CAPACITY

Direc-tion	Base Capacity Co pcu/h (11)	Adjustment factors for capacity: Carriageway width Table C-1:1 FCw (12)	Directional split Table C-2:1 FCsp (13)	Side friction Table C-3:1 FCsf (14)	Actual capacity, C = Co*FCw*FCsp*FCsf pcu/h (11)*(12)*(13)*(14) (15)
1	3800	1.009	1.000	0.960	3681
2	3800	1.009	1.000	0.960	3681

ACTUAL SPEED and TRAVEL TIME for light vehicles — Only 2/2UD roads

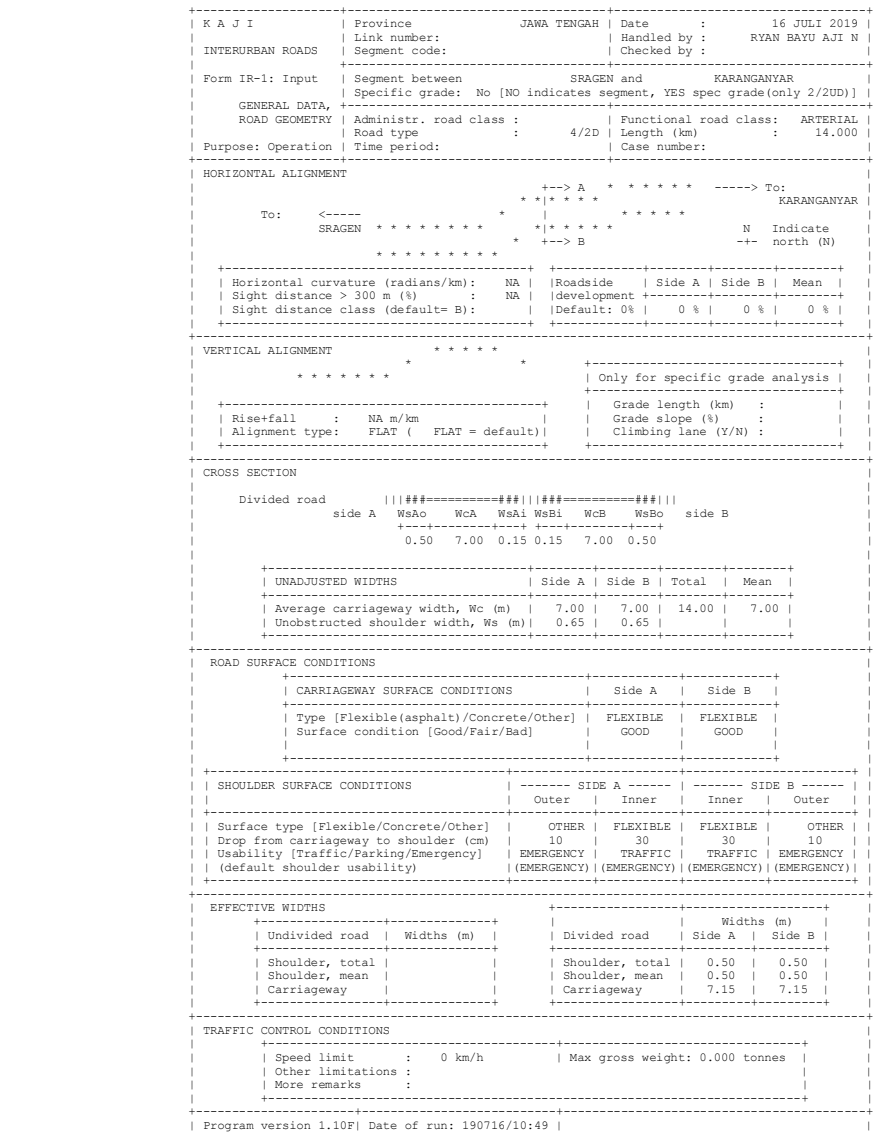
Di-rec-tion	Traffic flow, Q Form IR-2 pcu/h (21)	Degree of saturation DS=Q/C (21)/(15) (22)	Actual speed,Vlv km/h (23)	Road segment length, L Fig D2:1/:2 km (24)	Travel time,TT (24/23) sec (25)	ACTUAL SPEEDS for other vehicle types km/h MHV	LB	LT	MC	Degree of rec-tion bunching Fig D3:1 (31)	DB
1	1795	0.488	66.82	14.000	754.238	55.68	69.39	53.11	54.82		
2	1658	0.450	67.84	14.000	742.897	56.53	70.45	53.92	55.66		

Space for user remark:

Program version 1.10F | Date of run: 190716/11:01

Sumber : Hasil Analisis Software KAJI (2019)

Lampiran 11 Analisis Hasil Software KAJI Jalan Arteri Rabu Pagi



KAJI -- INTERURBAN ROADS Form IR-2: Input	Province: JAWA TENGAH Link number: Segment code:	Date: 16 JULI 2019 Handled by: RYAN BAYU AJI N Checked by:
TRAFFIC FLOW, SIDE FRICTION Purpose: Operation	Administr. road class : Road type : 4/2D Time period :	Functional road class: ARTERIAL Length (km) : 14.000 Case number:

TRAFFIC DATA:

Type of traffic data CLASSIFIED-HOURLY (CLass/AAdt/UNclass)	ANNUAL AVERAGE DAILY TRAFFIC AADT (veh/day) K-factor (default: 0.11)	DIRECTIONAL SPLIT Dir1 - Dir2 (default: 50 - 50) NA - NA %

Traffic Composition(%)	LV (%)	MHV (%)	LB (%)	LT (%)	MC (%)	Total (%)
User values (normal values)	14.34 (57.0)	3.244 (23.0)	0.457 (7.0)	2.220 (4.0)	79.73 (9.0)	100.0 (100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck
MC = MotorCycle

Traffic flow data for whole segment analysis:

Row	Dir-tion	Light Vehicle pce,1= 1.00 pce,2= 1.00 veh/h	pcu/h	Med Heavy Veh pce,1= 1.42 pce,2= 1.30 veh/h	pcu/h	Large Bus pce,1= 1.58 pce,2= 1.50 veh/h	pcu/h	Large Truck pce,1= 2.20 pce,2= 2.00 veh/h	pcu/h	MotorCycle pce,1= 0.62 pce,2= 0.50 veh/h	pcu/h	Total flow Q Split (%)	veh/h	pcu/h
1.1														
1.2														
2	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
3	Dir1	322	322	75	107	12	19	28	62	1573	975	43.76	2010	1485
4	Dir2	337	337	74	96	9	14	74	148	2089	1045	56.23	2583	1640
5	1+2	659	659	149	203	21	33	102	210	3662	2020		4593	3125
6	Note. If specific grade then dir 1 = uphill, dir 2= downhill							Directional split, SP= Q1/(Q1+Q2)=					43.7%	47.5%
7								Pcu-factor, Fpcu =						0.680

SIDE FRICTION CLASS: If detailed data are available, use first table to determine weighted frequency of events and then go to second table. If not, use second table only.

1. Determination of frequency of events

Calculation of weighted frequency of events per hour and 200 m of the studied road segment.	Side friction type of events (20)	Symbol (21)	Weighting factor (22)	Frequency of events (23)	Weighted frequency (24)
Frequencies are for both sides of the road.	Pedestrians	PED	0.6	NA / h,200m	NA
	Parking, stopping veh.	PSV	0.8	NA / h,200m	NA
	Entry+exit of vehicles	EEV	1.0	NA / h,200m	NA
	Slow-moving vehicles	SMV	0.4	NA / h	NA
				Total:	NA

2. Determination of side friction class

Weighted frequency of events (30)	Typical conditions	Side friction class
< 50	Rural, agriculture or undeveloped with very few activities	VL= very low
50 - 149	Rural, some roadside buildings and some activities	L= low
150 - 249	Village, residential activities	M= medium
250 - 349	Village, some market activities	H= high
> 350	Almost urban, market and business activities	VH= very high

For current case indicate side friction class: L (L is default)

Program version 1.10F	Date of run: 190716/10:49

KAJI -- INTERURBAN ROADS	Province: JAWA TENGAH	Date: 16 JULI 2019	
	Link number:	Handled by: RYAN BAYU AJI N	
Form IR-3: Analysis	Segment code:	Checked by:	
SPEED, CAPACITY	Administr. road class :	Functional road class: ARTERIAL	
	Road type : 4/2D	Length (km) : 14.000	
Purpose: Operation	Time period :	Case number:	

FREE FLOW SPEEDS.

Option to enter other free flow speeds: No

Di-rec-tion	Base free-flow speed FVo (km/h) for different vehicles					Carriage-way width (m)	FVo+FVw adjust-ment, FVw (km/h)	Adjustment factors for vehicle friction, Side Tab B3:1 (km/h)	Land use Road func Tab B4:1	Actual free-flow speeds, km/h Light FFVlv = (FVo+FVw)*FFVsf*FFVrc (4*5*6)			
	Table B-1:1 or B-1:2						Tab B2:1 (2)+(3)	FFVsf	FFVrc	vehicle	Other vehicle types		
	LV (2)	MHV	LB	LT	MC	(km/h) (3)		(4)	(5)	(6)	(7)	MHV	LB	LT	MC
1	78.0	65.0	81.0	62.0	64.0	0.6		78.6	0.980	1.000	77.02	64.19	79.99	61.22	63.20
2	78.0	65.0	81.0	62.0	64.0	0.6		78.6	0.980	1.000	77.02	64.19	79.99	61.22	63.20

Comments: Table B-1:1 used to get base free flow speed!

User FFV, dir1: None!
dir2: None!

CAPACITY

Direc-tion	Base Capacity Co pcu/h (11)	Adjustment factors for capacity: Carriageway width FCw Table C-2:1 (12)	Directional split FCsp Table C-3:1 (13)	Side friction FCsf Table C-4:1 (14)	Actual capacity, C C= Co*FCw*FCsp*FCsf pcu/h (11)*(12)*(13)*(14) (15)
1	3800	1.009	1.000	0.960	3681
2	3800	1.009	1.000	0.960	3681

ACTUAL SPEED and TRAVEL TIME for light vehicles — Only 2/2UD roads

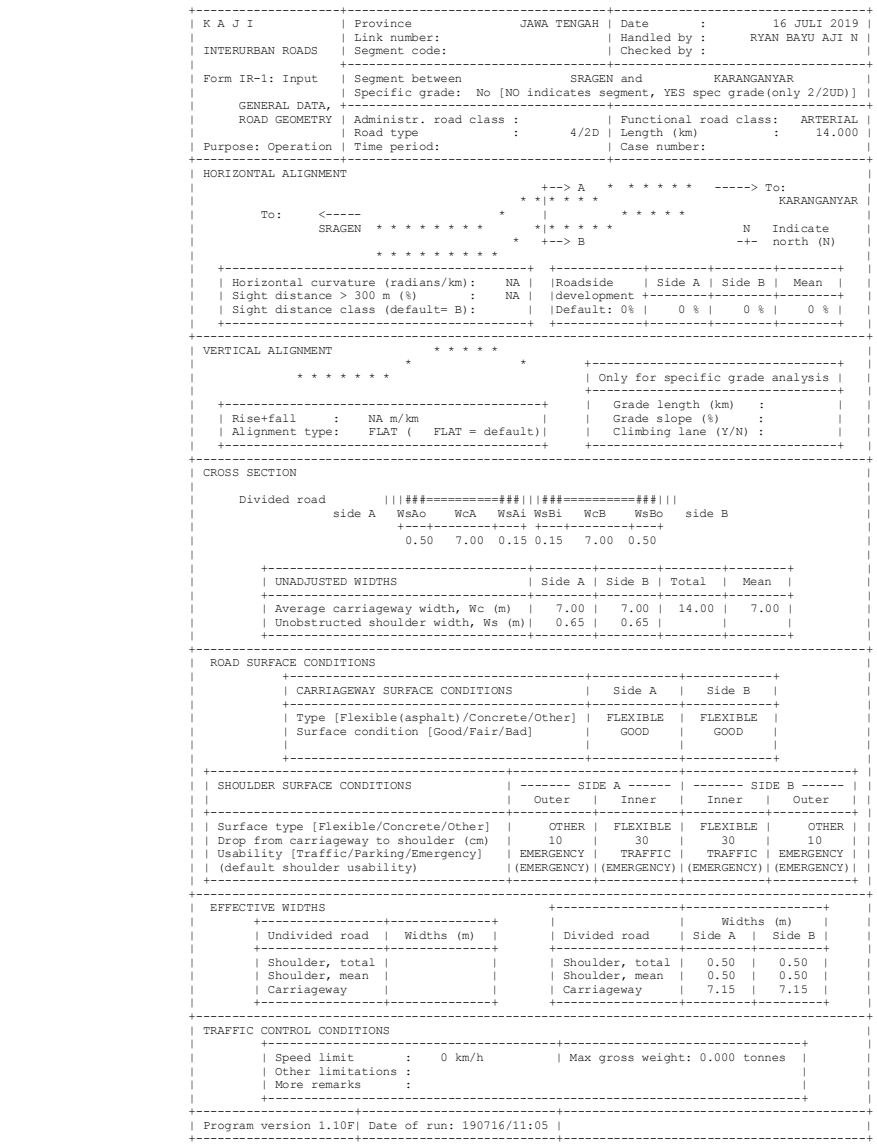
Di-rec-tion	Traffic flow, Q Form IR-2 pcu/h (21)	Degree of saturation DS=Q/C (21)/(15)	Actual speed, Fig D2:1/:2 km/h (22)	Road length, L (23)	Travel segment time, TT (24/23) km (24)	ACTUAL SPEEDS for other vehicle types km/h sec (25)	MHV	LB	LT	MC	Degree of rec-tion DB Fig D3:1 (31)	bunching
1	1485	0.403	69.06	14.000	729.720	57.55	71.72	54.89	56.67			
2	1640	0.446	67.97	14.000	741.483	56.64	70.58	54.02	55.77			

Space for user remark:

Program version 1.10F | Date of run: 190716/10:49

Sumber : Hasil Analisis Software KAJI (2019)

Lampiran 12 Analisis Hasil Software KAJI Jalan Arteri Rabu Siang



KAJI -- INTERURBAN ROADS Form IR-2: Input	Province: JAWA TENGAH Link number: Segment code:	Date: 16 JULI 2019 Handled by: RYAN BAYU AJI N Checked by:	
TRAFFIC FLOW, SIDE FRICTION Purpose: Operation	Administr. road class : Road type : 4/2D Time period :	Functional road class: ARTERIAL Length (km) : 14.000 Case number:	

TRAFFIC DATA:

Type of traffic data CLASSIFIED-HOURLY (CLass/AAdt/UNclass)	ANNUAL AVERAGE DAILY TRAFFIC AADT (veh/day)	K-factor (default: 0.11)	DIRECTIONAL SPLIT Dir1 - Dir2 (default: 50 - 50) NA - NA %

Traffic Composition(%)	LV (%)	MHV (%)	LB (%)	LT (%)	MC (%)	Total (%)
User values (normal values)	24.32 (57.0)	6.799 (23.0)	0.531 (7.0)	3.346 (4.0)	64.99 (9.0)	100.0 (100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck
MC = MotorCycle

Traffic flow data for whole segment analysis:

Row	Dir-tion rec-	Light Vehicle pce,1= 1.00 pce,2= 1.00 veh/h (1)	pcu/h (2)	Med Heavy Veh pce,1= 1.56 pce,2= 1.34 veh/h (3)	pcu/h (4)	Large Bus pce,1= 1.65 pce,2= 1.53 veh/h (5)	pcu/h (6)	Large Truck pce,1= 2.41 pce,2= 2.06 veh/h (7)	pcu/h (8)	MotorCycle pce,1= 0.76 pce,2= 0.54 veh/h (9)	pcu/h (10)	Total flow Q Split (%) (11)	veh/h (12)	pcu/h (13)	(14)
1.1	Dir1	412	412	117	183	8	13	57	137	1065	814	44.06	1659	1559	
1.2	Dir2	504	504	139	186	12	18	69	142	1382	743	55.93	2106	1593	
2	1+2	916	916	256	369	20	31	126	279	2447	1557		3765	3152	

6	Note. If specific grade then dir 1 = uphill, dir 2= downhill
	Directional split, SP= Q1/(Q1+Q2)= 44.0% 49.4%
7	Pcu-factor, Fpcu = 0.837

SIDE FRICTION CLASS: If detailed data are available, use first table to determine weighted frequency of events and then go to second table. If not, use second table only.

1. Determination of frequency of events

Calculation of weighted frequency of events per hour and 200 m of the studied road segment.	Side friction type of events (20)	Symbol (21)	Weighting factor (22)	Frequency of events (23)	Weighted frequency (24)
Frequencies are for both sides of the road.	Pedestrians	PED	0.6	NA / h,200m	NA
	Parking, stopping veh.	PSV	0.8	NA / h,200m	NA
	Entry+exit of vehicles	EEV	1.0	NA / h,200m	NA
	Slow-moving vehicles	SMV	0.4	NA / h	NA
				Total:	NA

2. Determination of side friction class

Weighted frequency of events (30)	Typical conditions	Side friction class
< 50	Rural, agriculture or undeveloped with very few activities	VL= very low
50 - 149	Rural, some roadside buildings and some activities	L= low
150 - 249	Village, residential activities	M= medium
250 - 349	Village, some market activities	H= high
> 350	Almost urban, market and business activities	VH= very high
For current case indicate side friction class:		L (L is default)

Program version 1.10F	Date of run: 190716/11:05

KAJI -- INTERURBAN ROADS	Province: JAWA TENGAH	Date: 16 JULI 2019
	Link number:	Handled by: RYAN BAYU AJI N
Form IR-3: Analysis	Segment code:	Checked by:
SPEED, CAPACITY	Administr. road class :	Functional road class: ARTERIAL
	Road type : 4/2D	Length (km) : 14.000
Purpose: Operation	Time period :	Case number:

FREE FLOW SPEEDS.

Option to enter other free flow speeds: No

Di-rec-tion	Base free-flow speed FVo (km/h) for different vehicles					Carriage-way width	FVo+FVw Light	Adjustment factors adjust-ment, FVw		Side friction	Land use Road func	Actual free-flow speeds, km/h FFVlv = (FVo+FVw)*FFVsf*FFVrc vehicle			
	Table B-1:1 or B-1:2											Light	Other vehicle types		
	LV (2)	MHV	LB	LT	MC	(km/h)	(km/h)	Tab B2:1 (3)	(2)+(3) (4)	FFVsf (5)	FFVrc (6)	(4*5*6) (7)	MHV	LB	LT	MC
1	78.0	65.0	81.0	62.0	64.0	0.6	78.6	0.980	1.000			77.02	64.19	79.99	61.22	63.20
2	78.0	65.0	81.0	62.0	64.0	0.6	78.6	0.980	1.000			77.02	64.19	79.99	61.22	63.20

Comments: Table B-1:1 used to get base free flow speed!

User FFV, dir1: None!
dir2: None!

CAPACITY

Direc-tion	Base Capacity Co pcu/h (11)	Adjustment factors for capacity: Carriageway width FCw Table C-2:1 (12)	Directional split FCsp Table C-3:1 (13)	Side friction FCsf Table C-4:1 (14)	Actual capacity, C C= Co*FCw*FCsp*FCsf pcu/h (11)*(12)*(13)*(14) (15)
1	3800	1.009	1.000	0.960	3681
2	3800	1.009	1.000	0.960	3681

ACTUAL SPEED and TRAVEL TIME for light vehicles — Only 2/2UD roads

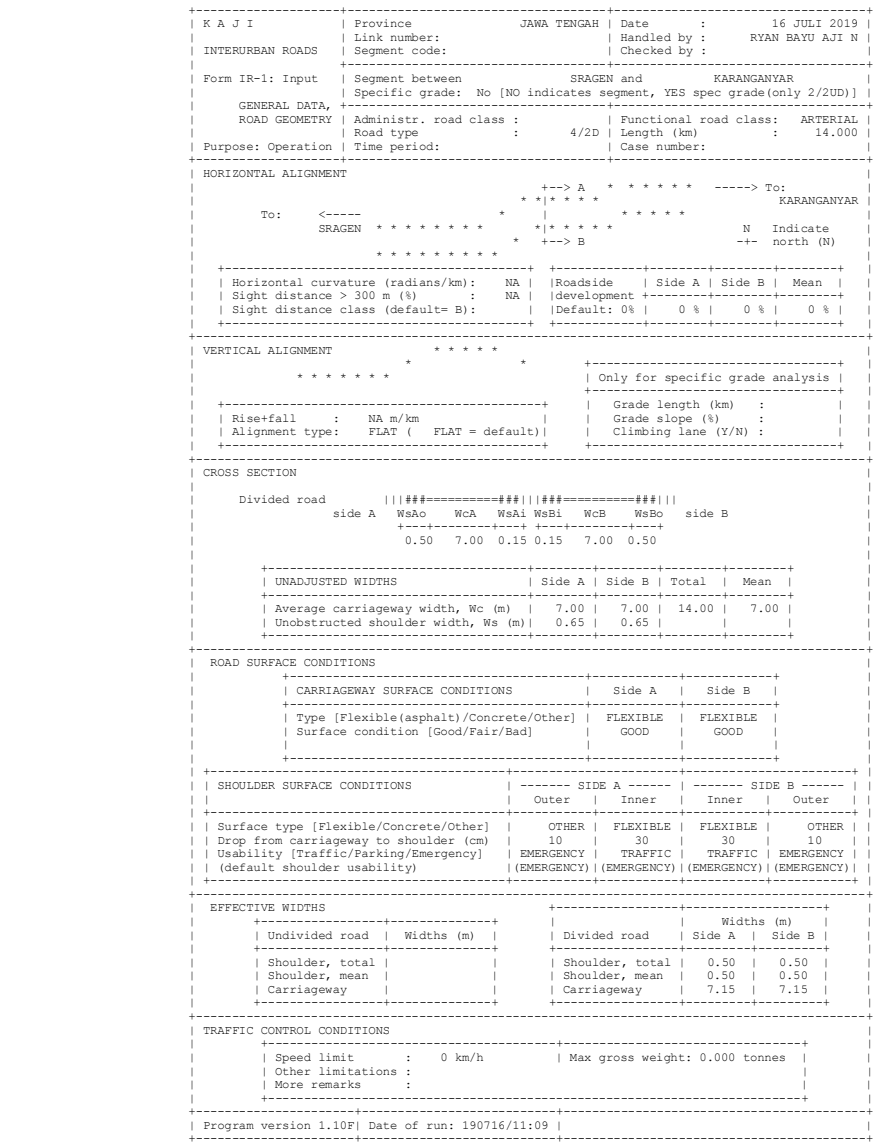
Di-rec-tion	Traffic flow, Q Form IR-2 pcu/h (21)	Degree of saturation DS=Q/C (21)/(15) (21)	Actual speed,Vlv Fig D2:1/:2 km/h (23)	Road segment length, L km (24)	Travel time,TT (24/23) sec (25)	ACTUAL SPEEDS for other vehicle types km/h MHV	LB	LT	MC	Degree of rec-tion DB Fig D3:1 (31)	bunching
1	1559	0.424	68.55	14.000	735.201	57.12	71.18	54.49	56.24		
2	1593	0.433	68.31	14.000	737.801	56.92	70.93	54.29	56.05		

Space for user remark:

Program version 1.10F | Date of run: 190716/11:05

Sumber : Hasil Analisis Software KAJI (2019)

Lampiran 13 Analisis Hasil Software KAJI Jalan Arteri Rabu Sore



KAJI -- INTERURBAN ROADS Form IR-2: Input	Province: JAWA TENGAH Link number: Segment code:	Date: 16 JULI 2019 Handled by: RYAN BAYU AJI N Checked by:	
TRAFFIC FLOW, SIDE FRICTION Purpose: Operation	Administr. road class : Road type : 4/2D Time period :	Functional road class: ARTERIAL Length (km) : 14.000 Case number:	

TRAFFIC DATA:

Type of traffic data CLASSIFIED-HOURLY (CLass/AAdt/UNclass)	ANNUAL AVERAGE DAILY TRAFFIC AADT (veh/day) K-factor (default: 0.11)	DIRECTIONAL SPLIT Dir1 - Dir2 (default: 50 - 50) NA - NA %

Traffic Composition(%)	LV (%)	MHV (%)	LB (%)	LT (%)	MC (%)	Total (%)
User values (normal values)	17.63 (57.0)	4.237 (23.0)	0.399 (7.0)	2.850 (4.0)	74.88 (9.0)	100.0 (100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck
MC = MotorCycle

Traffic flow data for whole segment analysis:

Row	Direction	Light Vehicle pce,1= 1.00 pce,2= 1.00 veh/h	pcu/h	Med Heavy Veh pce,1= 1.30 pce,2= 1.30 veh/h	pcu/h	Large Bus pce,1= 1.50 pce,2= 1.50 veh/h	pcu/h	Large Truck pce,1= 2.00 pce,2= 2.00 veh/h	pcu/h	MotorCycle pce,1= 0.50 pce,2= 0.50 veh/h	pcu/h	Total flow Q Split (%)	veh/h	pcu/h
1.1	1.2													
2	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
3	Dir1	379	379	99	129	9	14	67	134	2053	1027	49.53	2607	1683
4	Dir2	549	549	124	161	12	18	83	166	1888	944	50.46	2656	1838
5	1+2	928	928	223	290	21	32	150	300	3941	1971		5263	3521
6	Note. If specific grade then dir 1 = uphill, dir 2= downhill							Directional split, SP= Q1/(Q1+Q2)=					49.5%	47.7%
7								Pcu-factor, Fpcu =						0.669

SIDE FRICTION CLASS: If detailed data are available, use first table to determine weighted frequency of events and then go to second table. If not, use second table only.

1. Determination of frequency of events

Calculation of weighted frequency of events per hour and 200 m of the studied road segment.

Frequencies are for both sides of the road.

Side friction type of events (20)	Symbol (21)	Weighting factor (22)	Frequency of events (23)	Weighted frequency (24)
Pedestrians	PED	0.6	NA / h,200m	NA
Parking, stopping veh.	PSV	0.8	NA / h,200m	NA
Entry+exit of vehicles	EEV	1.0	NA / h,200m	NA
Slow-moving vehicles	SMV	0.4	NA / h	NA
			Total:	NA

2. Determination of side friction class

Weighted frequency of events (30)	Typical conditions	Side friction class
< 50	Rural, agriculture or undeveloped with very few activities	VL= very low
50 - 149	Rural, some roadside buildings and some activities	L= low
150 - 249	Village, residential activities	M= medium
250 - 349	Village, some market activities	H= high
> 350	Almost urban, market and business activities	VH= very high

For current case indicate side friction class: L (L is default)

Program version 1.10F	Date of run: 190716/11:09

KAJI -- INTERURBAN ROADS	Province: JAWA TENGAH	Date: 16 JULI 2019
	Link number:	Handled by: RYAN BAYU AJI N
Form IR-3: Analysis	Segment code:	Checked by:
SPEED, CAPACITY	Administr. road class :	Functional road class: ARTERIAL
	Road type : 4/2D	Length (km) : 14.000
Purpose: Operation	Time period :	Case number:

FREE FLOW SPEEDS.

Option to enter other free flow speeds: No

Di-rec-tion	Base free-flow speed FVo (km/h) for different vehicles					Carriage-way adjust-ment, FVw	FVo+FVw Adjustment factors Light vehicle Side friction		Actual free-flow speeds, km/h Land use Road func Light vehicle				
	Table B-1:1 or B-1:2									Other vehicle types			
	LV (2)	MHV	LB	LT	MC	(km/h)	(km/h) Tab B2:1 (3)	(2)+(3) Tab B3:1 (4)	FFVsf (5)	FFVrc Tab B4:1 (6)	(4*5*6)+(7)	MHV	LB	LT	MC
1	78.0	65.0	81.0	62.0	64.0	0.6	78.6	0.980	1.000	77.02	64.19	79.99	61.22	63.20
2	78.0	65.0	81.0	62.0	64.0	0.6	78.6	0.980	1.000	77.02	64.19	79.99	61.22	63.20

Comments: Table B-1:1 used to get base free flow speed!

User FFV, dir1: None!
dir2: None!

FFVlv = (FVo+FVw)*FFVsf*FFVrc

CAPACITY

Direc-tion	Base Capacity Co pcu/h (11)	Adjustment factors for capacity: Carriageway width Table C-1:1 FCw (12)	Directional split Table C-2:1 FCsp (13)	Side friction Table C-3:1 FCsf (14)	Actual capacity, C: C= Co*FCw*FCsp*FCsf pcu/h (11)*(12)*(13)*(14) (15)
1	3800	1.009	1.000	0.960	3681
2	3800	1.009	1.000	0.960	3681

ACTUAL SPEED and TRAVEL TIME for light vehicles — Only 2/2UD roads

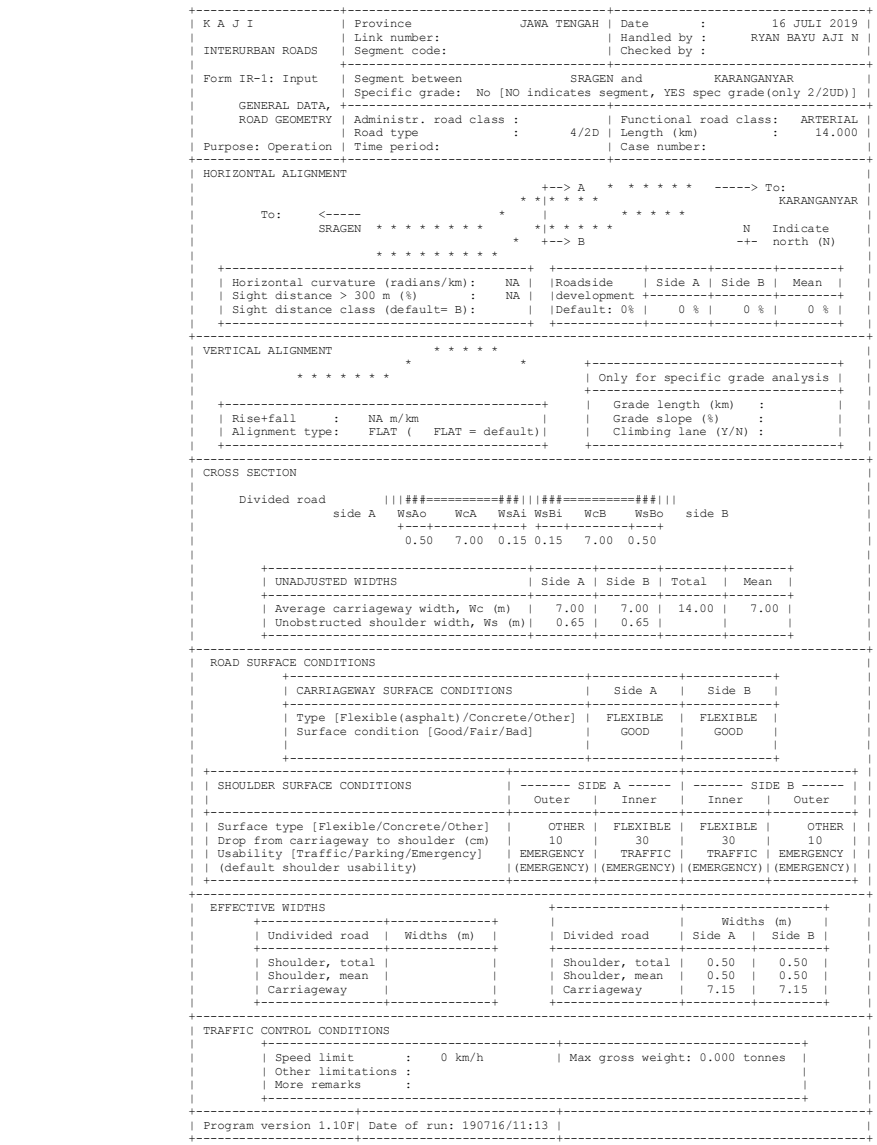
Di-rec-tion	Traffic flow, Q Form IR-2 pcu/h (21)	Degree of saturation DS=Q/C (21)/(15) (22)	Actual speed,Vlv km/h (23)	Road segment length, L Fig D2:1/:2 km (24)	Travel time,TT (24/23) sec (25)	ACTUAL SPEEDS for other vehicle types km/h MHV	LB	LT	MC	Degree of rec-tion DB (31)	bunching Fig D3:1
1	1683	0.457	67.65	14.000	744.907	56.38	70.26	53.78	55.51		
2	1838	0.499	66.49	14.000	757.975	55.41	69.05	52.85	54.55		

Space for user remark:

Program version 1.10F | Date of run: 190716/11:09

Sumber : Hasil Analisis Software KAJI (2019)

Lampiran 14 Analisis Hasil Software KAJI Jalan Arteri Minggu Pagi



KAJI -- INTERURBAN ROADS Form IR-2: Input	Province: JAWA TENGAH Link number: Segment code:	Date: 16 JULI 2019 Handled by: RYAN BAYU AJI N Checked by:	
TRAFFIC FLOW, SIDE FRICTION Purpose: Operation	Administr. road class : Road type : 4/2D Time period :	Functional road class: ARTERIAL Length (km) : 14.000 Case number:	

TRAFFIC DATA:

Type of traffic data CLASSIFIED-HOURLY (CLass/AAdt/UNclass)	ANNUAL AVERAGE DAILY TRAFFIC AADT (veh/day)	K-factor (default: 0.11)	DIRECTIONAL SPLIT Dir1 - Dir2 (default: 50 - 50) NA - NA %

Traffic Composition(%)	LV (%)	MHV (%)	LB (%)	LT (%)	MC (%)	Total (%)
User values (normal values)	14.87 (57.0)	3.671 (23.0)	0.771 (7.0)	2.128 (4.0)	78.55 (9.0)	100.0 (100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck
MC = MotorCycle

Traffic flow data for whole segment analysis:

Row	Di-rec-tion	Light Vehicle pce,1= 1.00 pce,2= 1.00 veh/h	pcu/h	Med Heavy Veh pce,1= 1.46 pce,2= 1.60 veh/h	pcu/h	Large Bus pce,1= 1.60 pce,2= 1.70 veh/h	pcu/h	Large Truck pce,1= 2.26 pce,2= 2.49 veh/h	pcu/h	MotorCycle pce,1= 0.66 pce,2= 0.80 veh/h	pcu/h	Total flow Q Split (%)	veh/h	pcu/h
1	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
3	Dir1	255	255	71	103	13	21	39	88	1590	1043	52.35	1968	1510
4	Dir2	304	304	67	107	16	27	41	102	1363	1087	47.64	1791	1627
5	1+2	559	559	138	210	29	48	80	190	2953	2130		3759	3137
6	Note. If specific grade then dir 1 = uphill, dir 2= downhill							Directional split, SP= Q1/(Q1+Q2)=					52.3%	48.1%
7								Pcu-factor, Fpcu =						0.834

SIDE FRICTION CLASS: If detailed data are available, use first table to determine weighted frequency of events and then go to second table. If not, use second table only.

1. Determination of frequency of events

Calculation of weighted frequency of events per hour and 200 m of the studied road segment.

Frequencies are for both sides of the road.

Side friction type of events (20)	Symbol (21)	Weighting factor (22)	Frequency of events (23)	Weighted frequency (24)
Pedestrians	PED	0.6	NA / h,200m	NA
Parking, stopping veh.	PSV	0.8	NA / h,200m	NA
Entry+exit of vehicles	EEV	1.0	NA / h,200m	NA
Slow-moving vehicles	SMV	0.4	NA / h	NA
			Total:	NA

2. Determination of side friction class

Weighted frequency of events (30)	Typical conditions	Side friction class
< 50	Rural, agriculture or undeveloped with very few activities	VL= very low
50 - 149	Rural, some roadside buildings and some activities	L= low
150 - 249	Village, residential activities	M= medium
250 - 349	Village, some market activities	H= high
> 350	Almost urban, market and business activities	VH= very high

For current case indicate side friction class: L (L is default)

Program version 1.10F	Date of run: 190716/11:13

KAJI -- INTERURBAN ROADS	Province: JAWA TENGAH	Date: 16 JULI 2019
	Link number:	Handled by: RYAN BAYU AJI N
Form IR-3: Analysis	Segment code:	Checked by:
SPEED, CAPACITY	Administr. road class :	Functional road class: ARTERIAL
	Road type : 4/2D	Length (km) : 14.000
Purpose: Operation	Time period :	Case number:

FREE FLOW SPEEDS.

Option to enter other free flow speeds: No

Di-rec-tion	Base free-flow speed FVo (km/h) for different vehicles					Carriage-way width	FVo+FVw Light	Adjustment factors Side friction	Land use Road func	Actual free-flow speeds, km/h FFVlv = (FVo+FVw)*FFVsf*FFVrc Light			
	Table B-1:1 or B-1:2									Other vehicle types			
	LV	MHV	LB	LT	MC								
	(2)					(3)	(4)	(5)	(6)	(7)	MHV	LB	LT	MC
1	78.0	65.0	81.0	62.0	64.0	0.6	78.6	0.980	1.000	77.02	64.19	79.99	61.22	63.20
2	78.0	65.0	81.0	62.0	64.0	0.6	78.6	0.980	1.000	77.02	64.19	79.99	61.22	63.20

Comments: Table B-1:1 used to get base free flow speed!

User FFV, dir1: None!
dir2: None!

CAPACITY

Direc-tion	Base Capacity Co pcu/h (11)	Adjustment factors for capacity: Carriageway width FCw Table C-2:1 (12)	Directional split FCsp Table C-3:1 (13)	Side friction FCsf Table C-4:1 (14)	Actual capacity, C = Co*FCw*FCsp*FCsf pcu/h (11)*(12)*(13)*(14) (15)
1	3800	1.009	1.000	0.960	3681
2	3800	1.009	1.000	0.960	3681

ACTUAL SPEED and TRAVEL TIME for light vehicles — Only 2/2UD roads

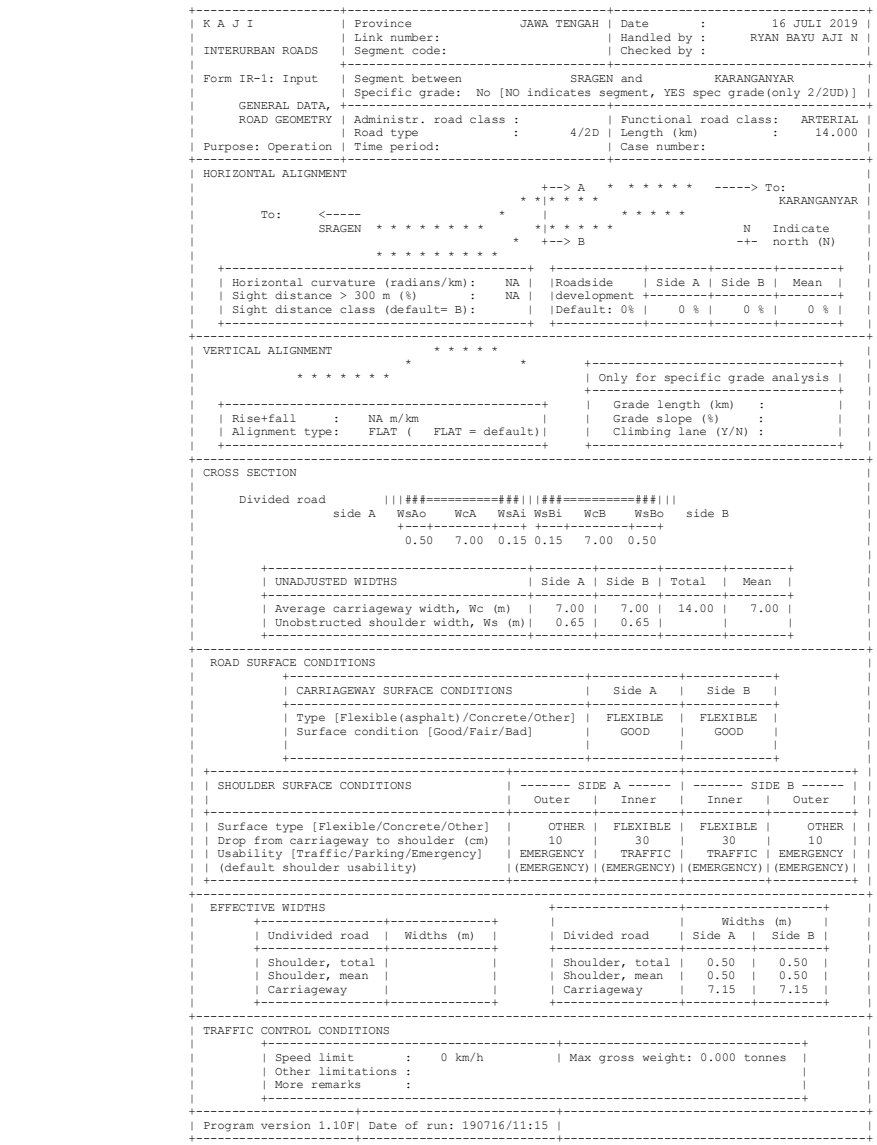
Di-rec-tion	Traffic flow, Q Form IR-2 pcu/h (21)	Degree of saturation DS=Q/C (21)/(15)	Actual speed,Vlv Fig D2:1/:2 km/h	Road segment length, L (22) km	Travel time,TT (24/23) sec (23)	ACTUAL SPEEDS for other vehicle types km/h MHV	LB	LT	MC	Degree of rec-tion DB (25)	bunching Fig D3:1 (31)
1	1510	0.410	68.89	14.000	731.555	57.41	71.54	54.76	56.52		
2	1627	0.442	68.06	14.000	740.447	56.72	70.68	54.10	55.84		

Space for user remark:

Program version 1.10F | Date of run: 190716/11:13

Sumber : Hasil Analisis Software KAJI (2019)

Lampiran 15 Analisis Hasil Software KAJI Jalan Arteri Minggu Siang



KAJI -- INTERURBAN ROADS	Province: JAWA TENGAH	Date: 16 JULI 2019	
	Link number:	Handled by: RYAN BAYU AJI N	
Form IR-2: Input	Segment code:	Checked by:	
TRAFFIC FLOW, SIDE FRICTION	Administr. road class :	Functional road class: ARTERIAL	
	Road type : 4/2D	Length (km) : 14.000	
Purpose: Operation	Time period :	Case number:	

TRAFFIC DATA:

Type of traffic data	ANNUAL AVERAGE DAILY TRAFFIC		DIRECTIONAL SPLIT	
	AADT	K-factor	Dir1 - Dir2	
CLASSIFIED-HOURLY	(veh/day)	(default: 0.11)	(default: 50 - 50)	
(CLass/AAdt/UNclass)			NA - NA %	

Traffic Composition(%)	LV (%)	MHV (%)	LB (%)	LT (%)	MC (%)	Total (%)
User values (normal values)	26.77 (57.0)	6.489 (23.0)	0.478 (7.0)	3.961 (4.0)	62.29 (9.0)	100.0 (100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck
MC = MotorCycle

Traffic flow data for whole segment analysis:

Row	Di-rec-tion	Light Vehicle pce,1= 1.00 pce,2= 1.00 veh/h	pcu/h	Med Heavy Veh pce,1= 1.50 pce,2= 1.53 veh/h	pcu/h	Large Bus pce,1= 1.55 pce,2= 1.60 veh/h	pcu/h	Large Truck pce,1= 2.25 pce,2= 2.33 veh/h	pcu/h	MotorCycle pce,1= 0.70 pce,2= 0.73 veh/h	pcu/h	Total flow Q Split (%)	veh/h	pcu/h
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
3	Dir1	375	375	99	149	4	6	58	131	864	605	47.81	1400	1266
4	Dir2	409	409	91	139	10	16	58	135	960	703	52.18	1528	1402
5	1+2	784	784	190	288	14	22	116	266	1824	1308		2928	2668
6	Note. If specific grade then dir 1 = uphill, dir 2= downhill							Directional split, SP= Q1/(Q1+Q2)=					47.8%	47.4%
7								Pcu-factor, Fpcu =						0.911

SIDE FRICTION CLASS: If detailed data are available, use first table to determine weighted frequency of events and then go to second table. If not, use second table only.

1. Determination of frequency of events

Calculation of weighted frequency of events per hour and 200 m of the studied road segment.

Frequencies are for both sides of the road.

Side friction type of events (20)	Symbol (21)	Weighting factor (22)	Frequency of events (23)	Weighted frequency (24)
Pedestrians	PED	0.6	NA / h,200m	NA
Parking, stopping veh.	PSV	0.8	NA / h,200m	NA
Entry+exit of vehicles	EEV	1.0	NA / h,200m	NA
Slow-moving vehicles	SMV	0.4	NA / h	NA
			Total:	NA

2. Determination of side friction class

Weighted frequency of events (30)	Typical conditions	Side friction class
< 50	Rural, agriculture or undeveloped with very few activities	VL= very low
50 - 149	Rural, some roadside buildings and some activities	L= low
150 - 249	Village, residential activities	M= medium
250 - 349	Village, some market activities	H= high
> 350	Almost urban, market and business activities	VH= very high

For current case indicate side friction class: L (L is default)

Program version 1.10F	Date of run: 190716/11:15

KAJI -- INTERURBAN ROADS	Province: JAWA TENGAH	Date: 16 JULI 2019
	Link number:	Handled by: RYAN BAYU AJI N
Form IR-3: Analysis	Segment code:	Checked by:
SPEED, CAPACITY	Administr. road class :	Functional road class: ARTERIAL
	Road type : 4/2D	Length (km) : 14.000
Purpose: Operation	Time period :	Case number:

FREE FLOW SPEEDS.

Option to enter other free flow speeds: No

Di-rec-tion	Base free-flow speed FVo (km/h) for different vehicles					Carriage-way width (m)	FVo+FVw Light	Adjustment factors for adjust-ment, FVw		Actual free-flow speeds, km/h FFVlv = (FVo+FVw)*FFVsf*FFVrc			
	Table B-1:1 or B-1:2							Side friction Tab B2:1	Road func-tion Tab B3:1	Light vehicle Tab B4:1	Other vehicle types		
	LV (2)	MHV (2)	LB (2)	LT (2)	MC (2)	(km/h) (3)	(km/h) (4)	FFVsf (5)	FFVrc (6)	(4*5*6)+(2)+(3) (7)	MHV	LB	LT	MC
1	78.0	65.0	81.0	62.0	64.0	0.6	78.6	0.980	1.000	77.02	64.19	79.99	61.22	63.20
2	78.0	65.0	81.0	62.0	64.0	0.6	78.6	0.980	1.000	77.02	64.19	79.99	61.22	63.20

Comments: Table B-1:1 used to get base free flow speed!

User FFV, dir1: None!
dir2: None!

CAPACITY

Direc-tion	Base Capacity	Adjustment factors for capacity				Actual capacity, C
	Co	Carriageway width	Directional split	Side friction		C= Co*FCw*FCsp*FCsf pcu/h
	Table C-1:1 pcu/h (11)	FCw Table C-2:1 (12)	FCsp Table C-3:1 (13)	FCsf Table C-4:1 (14)		(11)*(12)*(13)*(14) (15)
1	3800	1.009	1.000	0.960		3681
2	3800	1.009	1.000	0.960		3681

ACTUAL SPEED and TRAVEL TIME for light vehicles — Only 2/2UD roads

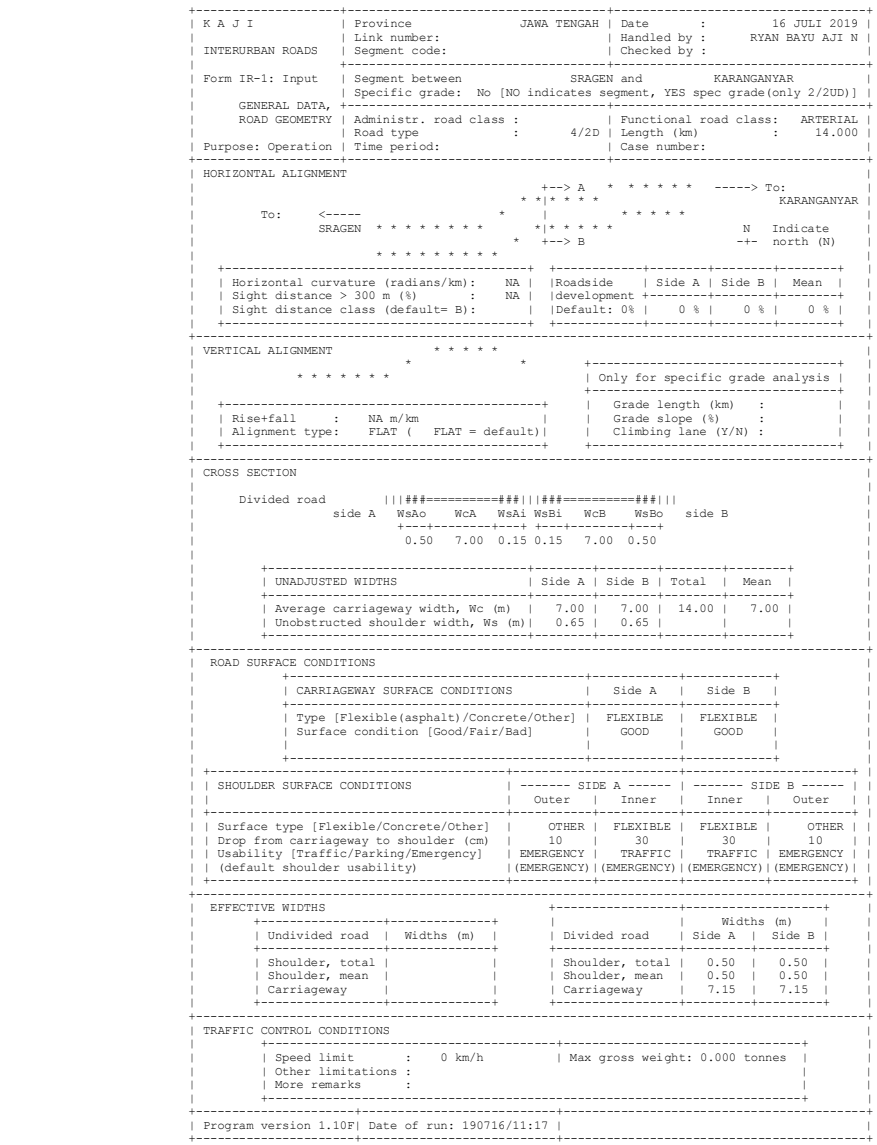
Di-rec-tion	Traffic flow, Q Form IR-2 pcu/h (21)/(15) (21)	Degree of saturation DS=Q/C (22)	Actual speed,Vlv Fig D2:1/:2 km/h (23)	Road segment length, L km (24)	Travel time,TT (24/23) sec (25)	ACTUAL SPEEDS for other vehicle types km/h MHV	LB	LT	MC	Degree of rec-tion DB (31)	bunching Fig D3:1
1	1266	0.344	70.53	14.000	714.571	58.77	73.24	56.06	57.87		
2	1402	0.381	69.63	14.000	723.787	58.02	72.31	55.34	57.13		

Space for user remark:

Program version 1.10F | Date of run: 190716/11:15

Sumber : Hasil Analisis Software KAJI (2019)

Lampiran 16 Analisis Hasil Software KAJI Jalan Arteri Minggu Sore



KAJI -- INTERURBAN ROADS	Province: JAWA TENGAH	Date: 16 JULI 2019	
	Link number:	Handled by: RYAN BAYU AJI N	
Form IR-2: Input	Segment code:	Checked by:	
TRAFFIC FLOW, SIDE FRICTION	Administr. road class :	Functional road class: ARTERIAL	
	Road type : 4/2D	Length (km) : 14.000	
Purpose: Operation	Time period :	Case number:	

TRAFFIC DATA:

Type of traffic data	ANNUAL AVERAGE DAILY TRAFFIC	DIRECTIONAL SPLIT
	AADT / K-factor	Dir1 - Dir2
CLASSIFIED-HOURLY	(veh/day) (default: 0.11)	(default: 50 - 50)
(CLass/AAdt/UNclass)		NA - NA %

Traffic Composition(%)	LV (%)	MHV (%)	LB (%)	LT (%)	MC (%)	Total (%)
User values	23.40	5.204	0.764	3.587	67.03	100.0
(normal values)	(57.0)	(23.0)	(7.0)	(4.0)	(9.0)	(100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck
MC = MotorCycle

Traffic flow data for whole segment analysis:

Row	Di-tion	Light Vehicle pce,1= 1.00 pce,2= 1.00 veh/h	pcu/h	Med Heavy Veh pce,1= 1.59 pce,2= 1.56 veh/h	pcu/h	Large Bus pce,1= 1.69 pce,2= 1.64 veh/h	pcu/h	Large Truck pce,1= 2.48 pce,2= 2.40 veh/h	pcu/h	MotorCycle pce,1= 0.79 pce,2= 0.76 veh/h	pcu/h	Total flow Q Split (%)	veh/h	pcu/h
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
3	Dir1	417	417	94	150	10	17	59	146	1184	937	51.86	1764	1667
4	Dir2	379	379	83	129	16	26	63	151	1096	832	48.13	1637	1517
5	1+2	796	796	177	279	26	43	122	297	2280	1769		3401	3184
6	Note. If specific grade then dir 1 = uphill, dir 2= downhill							Directional split, SP= Q1/(Q1+Q2)=					51.8%	52.3%
7								Pcu-factor, Fpcu =						0.936

SIDE FRICTION CLASS: If detailed data are available, use first table to determine weighted frequency of events and then go to second table. If not, use second table only.

1. Determination of frequency of events

Calculation of weighted frequency of events per hour and 200 m of the studied road segment.

Frequencies are for both sides of the road.

Side friction type of events (20)	Symbol (21)	Weighting factor (22)	Frequency of events (23)	Weighted frequency (24)
Pedestrians	PED	0.6	NA / h,200m	NA
Parking, stopping veh.	PSV	0.8	NA / h,200m	NA
Entry+exit of vehicles	EEV	1.0	NA / h,200m	NA
Slow-moving vehicles	SMV	0.4	NA / h	NA
			Total:	NA

2. Determination of side friction class

Weighted frequency of events (30)	Typical conditions	Side friction class
< 50	Rural, agriculture or undeveloped with very few activities	VL= very low
50 - 149	Rural, some roadside buildings and some activities	L= low
150 - 249	Village, residential activities	M= medium
250 - 349	Village, some market activities	H= high
> 350	Almost urban, market and business activities	VH= very high

For current case indicate side friction class: L (L is default)

Program version 1.10F	Date of run: 190716/11:17

KAJI -- INTERURBAN ROADS	Province: JAWA TENGAH	Date: 16 JULI 2019
	Link number:	Handled by: RYAN BAYU AJI N
Form IR-3: Analysis	Segment code:	Checked by:
SPEED, CAPACITY	Administr. road class :	Functional road class: ARTERIAL
	Road type : 4/2D	Length (km) : 14.000
Purpose: Operation	Time period :	Case number:

FREE FLOW SPEEDS.

Option to enter other free flow speeds: No

Di-rec-tion	Base free-flow speed FVo (km/h) for different vehicles					Carriage-way width (m)	FVo+FVw Light vehicle (km/h)	Adjustment factors for adjust-ment, FVw		Actual free-flow speeds, km/h			
	Table B-1:1 or B-1:2						Tab B2:1 (2)+(3)	friction Tab B3:1	Road func Tab B4:1	Light vehicle (4*5*6)	Other vehicle types		
	LV (2)	MHV	LB	LT	MC	(km/h) (3)	(km/h) (4)	FFVsf (5)	FFVrc (6)	FFVlv = (FVo+FVw)*FFVsf*FFVrc (7)	MHV	LB	LT	MC
1	78.0	65.0	81.0	62.0	64.0	0.6	78.6	0.980	1.000	77.02	64.19	79.99	61.22	63.20
2	78.0	65.0	81.0	62.0	64.0	0.6	78.6	0.980	1.000	77.02	64.19	79.99	61.22	63.20

Comments: Table B-1:1 used to get base free flow speed!

User FFV, dir1: None!
dir2: None!

CAPACITY

Direc-tion	Base Capacity Co pcu/h (11)	Adjustment factors for capacity: Carriageway width FCw Table C-2:1 (12)	Directional split FCsp Table C-3:1 (13)	Side friction FCsf Table C-4:1 (14)	Actual capacity, C = Co*FCw*FCsp*FCsf pcu/h (11)*(12)*(13)*(14) (15)
1	3800	1.009	1.000	0.960	3681
2	3800	1.009	1.000	0.960	3681

ACTUAL SPEED and TRAVEL TIME for light vehicles — Only 2/2UD roads

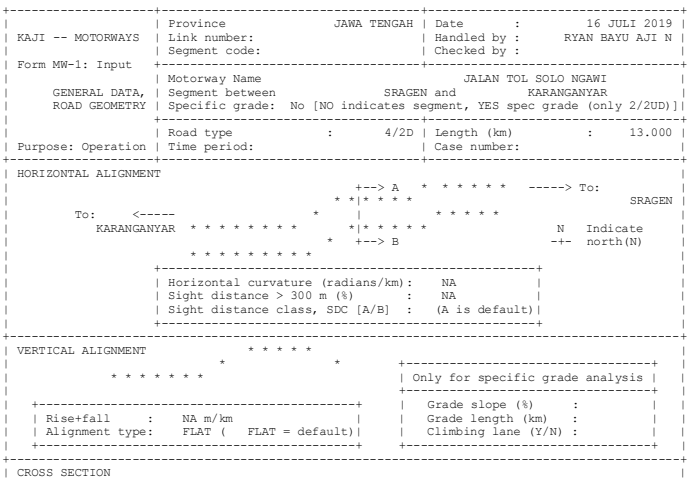
Di-rec-tion	Traffic flow, Q Form IR-2 pcu/h (21)	Degree of saturation DS=Q/C (21)/(15)	Actual speed, Fig D2:1/:2 km/h (22)	Road segment length, L km (23)	Travel time,TT (24/23) sec (24)	ACTUAL SPEEDS for other vehicle types km/h MHV	LB	LT	MC	Degree of rec-tion DB (25)	bunching Fig D3:1 (31)
1	1667	0.453	67.77	14.000	743.619	56.48	70.38	53.87	55.61		
2	1517	0.412	68.84	14.000	732.074	57.37	71.49	54.72	56.48		

Space for user remark:

Program version 1.10F	Date of run: 190716/11:17

Sumber : Hasil Analisis Software KAJI (2019)

Lampiran 17 Analisis Hasil Software KAJI Jalan Tol Hari Senin Pagi



KAJI -- MOTORWAYS	Province Link number: Segment code:	JAWA TENGAH	Date : 16 JULI 2019 Handled by : RYAN BAYU AJI N Checked by :
Form MW-2: Input TRAFFIC FLOW	Motorway Name Segment between	JALAN TOL SOLO NGAWI SRAGEN and KARANGANYAR	
Purpose: Operation	Road type : 4/2D Time period:		Length (km) : 13.000 Case number:

TRAFFIC DATA:

CASE A :

Type of traffic data	ANNUAL AVERAGE DAILY TRAFFIC		DIRECTIONAL SPLIT
CLASSIFIED-HOURLY	AADT (veh/day)	K-factor (default: 0.11)	Dir1 - Dir2 (default: 50 - 50)
(CLass/AAdt/UNclass)			NA - NA %

Traffic Composition(%)	LV (%)	MHV (%)	LB (%)	LT (%)	Total (%)
User values (normal values)	86.56 (63.0)	6.343 (25.0)	3.855 (8.0)	3.233 (4.0)	100.0 (100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck

Traffic flow data for whole segment analysis:

Row	Direc-tion	Light Vehicle	Med Heavy Veh	Large Bus	Large Truck	Total flow Q		
		pce,1= 1.00	pce,1= 1.26	pce,1= 1.26	pce,1= 1.71			
		pce,2= 1.00	pce,2= 1.27	pce,2= 1.27	pce,2= 1.74			
		veh/h	veh/h	veh/h	veh/h	Split (%)	veh/h	pcu/h
2	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(12)	(13)	(14)
3	Dir1	317	317	19	24	10	13	8	14	44.02	354	368
4	Dir2	379	379	32	41	21	27	18	31	55.97	450	478
5	Dir1+2	696	696	51	65	31	40	26	45		804	846
6	Note. If specific grade then direction1= uphill, direction2= downhill					Directional split,SP=Q1/(Q1+Q2)=		44.02%
7						Pcu-factor, Fpcu =		43.49%
								1.052

CASE B :

Type of traffic data	ANNUAL AVERAGE DAILY TRAFFIC		DIRECTIONAL SPLIT
CLASSIFIED-HOURLY	AADT (veh/day)	K-factor (normal: 0.11)	Dir1 - Dir2 (normal: 50 - 50)
(CLass/AAdt/UNclass)			NA - NA %

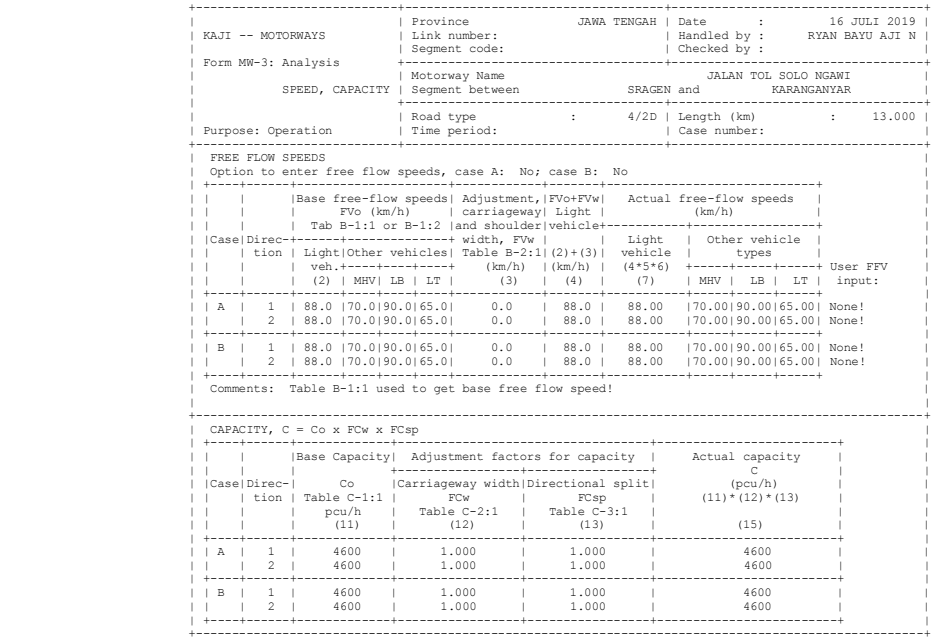
Traffic Composition(%)	LV (%)	MHV (%)	LB (%)	LT (%)	Total (%)
User values (normal values)	86.56 (63.0)	6.343 (25.0)	3.855 (8.0)	3.233 (4.0)	100.0 (100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck

Traffic flow data for whole segment analysis:

Row	Direc-tion	Light Vehicle	Med Heavy Veh	Large Bus	Large Truck	Total flow Q		
		pce,1= 1.00	pce,1= 1.26	pce,1= 1.26	pce,1= 1.71			
		pce,2= 1.00	pce,2= 1.27	pce,2= 1.27	pce,2= 1.74			
		veh/h	veh/h	veh/h	veh/h	Split (%)	veh/h	pcu/h
2	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(12)	(13)	(14)
3	Dir1	317	317	19	24	10	13	8	14	44.02	354	368
4	Dir2	379	379	32	41	21	27	18	31	55.97	450	478
5	Dir1+2	696	696	51	65	31	40	26	45		804	846
6	Note. If specific grade then direction1= uphill, direction2= downhill					Directional split,SP=Q1/(Q1+Q2)=		44.02%
7						Pcu-factor, Fpcu =		43.49%
								1.052

Program version 1.10F | Date of run: 190716/14:20 |



KAJI -- MOTORWAYS	Province: JAWA TENGAH Link number: Segment code:	Date : 16 JULI 2019 Handled by : RYAN BAYU AJI N Checked by :	
Form MW-3: Analysis	Motorway Name: JALAN TOL SOLO NGAWI		
SPEED, CAPACITY	Segment between: SRAGEN and KARANGANYAR		
Purpose: Operation	Road type : 4/2D Time period:	Length (km) : 13.000 Case number:	

FREE FLOW SPEEDS

Option to enter free flow speeds, case A: No; case B: No

Case	Direction	Base free-flow speeds: FVo (km/h) Tab B-1:1 or B-1:2: Light veh. (2)	MHV (2)	LB (2)	LT (2)	Adjustment, width, FVw (km/h) and shoulder: Other vehicles (3)	FVo+FVw: carriageway; Light vehicle Table B-2:1 (2)+(3) (km/h) (4)	Actual free-flow speeds (km/h): Light vehicle (4*5*6) (7)	Other vehicle types: MHV	LB	LT	User FFV input:
A	1	88.0	70.0	90.0	65.0	0.0	88.0	88.00	70.00	90.00	65.00	None!
	2	88.0	70.0	90.0	65.0	0.0	88.0	88.00	70.00	90.00	65.00	None!
B	1	88.0	70.0	90.0	65.0	0.0	88.0	88.00	70.00	90.00	65.00	None!
	2	88.0	70.0	90.0	65.0	0.0	88.0	88.00	70.00	90.00	65.00	None!

Comments: Table B-1:1 used to get base free flow speed!

CAPACITY, C = Co x FCw x FCsp

Case	Direction	Base Capacity: Co (pcu/h) Table C-1:1 (11)	Adjustment factors for capacity: Carriageway width FCw Table C-2:1 (12)	Directional split FCsp Table C-3:1 (13)	Actual capacity C (pcu/h) (11)*(12)*(13) (15)
A	1	4600	1.000	1.000	4600
	2	4600	1.000	1.000	4600
B	1	4600	1.000	1.000	4600
	2	4600	1.000	1.000	4600

ACTUAL SPEED and TRAVEL TIME for light vehicles

DEGREE OF BUNCHING

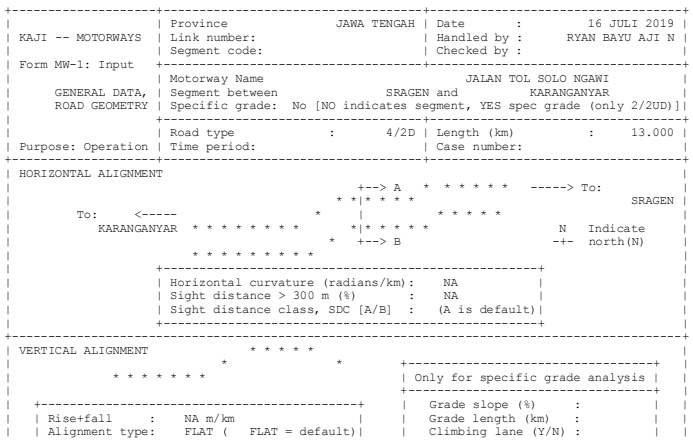
Case	Direction	Traffic flow, Q (pcu/h) (21)	Degree of saturation DS=Q/C (22)	Actual speed, Vlv (km/h) Fig D2:1/2 (23)	Road segment length, L (km)	Travel time, TT (24)/(23) (sec) (25)	ACTUAL SPEEDS other vehicles (km/h): MHV	LB	LT	Degree of bunching Di-rec-tion Fig D3:1 (31)
A	1	368	0.080	85.91	13.000	544.74	68.33	87.86	63.45	
	2	478	0.104	85.27	13.000	548.82	67.83	87.21	62.98	
B	1	368	0.080	85.91	13.000	544.74	68.33	87.86	63.45	
	2	478	0.104	85.27	13.000	548.82	67.83	87.21	62.98	

Space for user remark: Only 2/2UD roads

Program version 1.10F | Date of run: 190716/14:20

Sumber : Hasil Analisis Software KAJI (2019)

Lampiran 18 Analisis Hasil Software KAJI Jalan Tol Senin Siang



KAJI -- MOTORWAYS	Province: JAWA TENGAH Link number: Segment code:	Date : 16 JULI 2019 Handled by : RYAN BAYU AJI N Checked by :	
Form MW-2: Input	Motorway Name: JALAN TOL SOLO NGAWI		
TRAFFIC FLOW	Segment between: SRAGEN and KARANGANYAR		
Purpose: Operation	Road type : 4/2D Time period:	Length (km) : 13.000 Case number:	

TRAFFIC DATA:

CASE A :

Type of traffic data	ANNUAL AVERAGE DAILY TRAFFIC	DIRECTIONAL SPLIT
CLASSIFIED-HOURLY	AADT (veh/day) / K-factor (default: 0.11)	Dir1 - Dir2 (default: 50 - 50)
(CLass/AAdt/UNclass)		NA - NA %

Traffic Composition(%)	LV (%)	MHV (%)	LB (%)	LT (%)	Total (%)
User values (normal values)	90.98 (63.0)	3.299 (25.0)	2.918 (8.0)	2.791 (4.0)	100.0 (100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck

Traffic flow data for whole segment analysis:

Row	Direction	Light Vehicle pce,1= 1.00 pce,2= 1.00 veh/h	Light Vehicle pcu/h	Med Heavy Veh pce,1= 1.27 pce,2= 1.26 veh/h	Med Heavy Veh pcu/h	Large Bus pce,1= 1.27 pce,2= 1.26 veh/h	Large Bus pcu/h	Large Truck pce,1= 1.73 pce,2= 1.72 veh/h	Large Truck pcu/h	Total flow Q Split (%)	Total flow Q veh/h	Total flow Q pcu/h
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(12)	(13)	(14)
3	Dir1	380	380	10	13	8	10	15	26	52.41	413	429
4	Dir2	337	337	16	20	15	19	7	12	47.58	375	388
5	Dir1+2	717	717	26	33	23	29	22	38		788	817
6	Note. If specific grade then direction1= uphill, direction2= downhill							Directional split,SP=Q1/(Q1+Q2)=		52.41%		52.50%
7								Pcu-factor, Fpcu =				1.036

CASE B :

Type of traffic data	ANNUAL AVERAGE DAILY TRAFFIC	DIRECTIONAL SPLIT
CLASSIFIED-HOURLY	AADT (veh/day) / K-factor (normal: 0.11)	Dir1 - Dir2 (normal: 50 - 50)
(CLass/AAdt/UNclass)		NA - NA %

Traffic Composition(%)	LV (%)	MHV (%)	LB (%)	LT (%)	Total (%)
User values (normal values)	90.98 (63.0)	3.299 (25.0)	2.918 (8.0)	2.791 (4.0)	100.0 (100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck

Traffic flow data for whole segment analysis:

Row	Direction	Light Vehicle pce,1= 1.00 pce,2= 1.00 veh/h	Light Vehicle pcu/h	Med Heavy Veh pce,1= 1.27 pce,2= 1.26 veh/h	Med Heavy Veh pcu/h	Large Bus pce,1= 1.27 pce,2= 1.26 veh/h	Large Bus pcu/h	Large Truck pce,1= 1.73 pce,2= 1.72 veh/h	Large Truck pcu/h	Total flow Q Split (%)	Total flow Q veh/h	Total flow Q pcu/h
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(12)	(13)	(14)
3	Dir1	380	380	10	13	8	10	15	26	52.41	413	429
4	Dir2	337	337	16	20	15	19	7	12	47.58	375	388
5	Dir1+2	717	717	26	33	23	29	22	38		788	817
6	Note. If specific grade then direction1= uphill, direction2= downhill							Directional split,SP=Q1/(Q1+Q2)=		52.41%		52.50%
7								Pcu-factor, Fpcu =				1.036

Program version 1.10F | Date of run: 190716/14:26 |

KAJI -- MOTORWAYS	Province Link number: Segment code:	JAWA TENGAH	Date : Handled by : Checked by :	16 JULI 2019 RYAN BAYU AJI N
Form MW-3: Analysis SPEED, CAPACITY	Motorway Name Segment between		JALAN TOL SOLO NGAWI SRAGEN and KARANGANYAR	
Purpose: Operation	Road type : Time period:	4/2D	Length (km) : Case number:	13.000

FREE FLOW SPEEDS

Option to enter free flow speeds, case A: No; case B: No

Case	Direction	Base free-flow speeds FVo (km/h) Tab B-1:1 or B-1:2 Light	Other vehicles	Adjustment, width, FVw (km/h) Table B-2:1	FVo+FVw and shoulder (2)+(3) (km/h)	Light vehicle Light (4*5*6)	Actual free-flow speeds (km/h) Other vehicle types MHV	LB	LT	User FFV input:
		(2)	MHV LB LT	(3)	(4)	(7)				
A	1	88.0	70.0 90.0 65.0	0.0	88.0	88.00	70.00	90.00	65.00	None!
	2	88.0	70.0 90.0 65.0	0.0	88.0	88.00	70.00	90.00	65.00	None!
B	1	88.0	70.0 90.0 65.0	0.0	88.0	88.00	70.00	90.00	65.00	None!
	2	88.0	70.0 90.0 65.0	0.0	88.0	88.00	70.00	90.00	65.00	None!

Comments: Table B-1:1 used to get base free flow speed!

CAPACITY, C = Co x FCw x FCsp

Case	Direction	Base Capacity Co Table C-1:1 pcu/h (11)	Adjustment factors for capacity Carriageway width FCw Table C-2:1 (12)	Directional split FCsp Table C-3:1 (13)	Actual capacity C (pcu/h) (11)*(12)*(13) (15)
A	1	4600	1.000	1.000	4600
	2	4600	1.000	1.000	4600
B	1	4600	1.000	1.000	4600
	2	4600	1.000	1.000	4600

ACTUAL SPEED and TRAVEL TIME for light vehicles

DEGREE OF BUNCHING

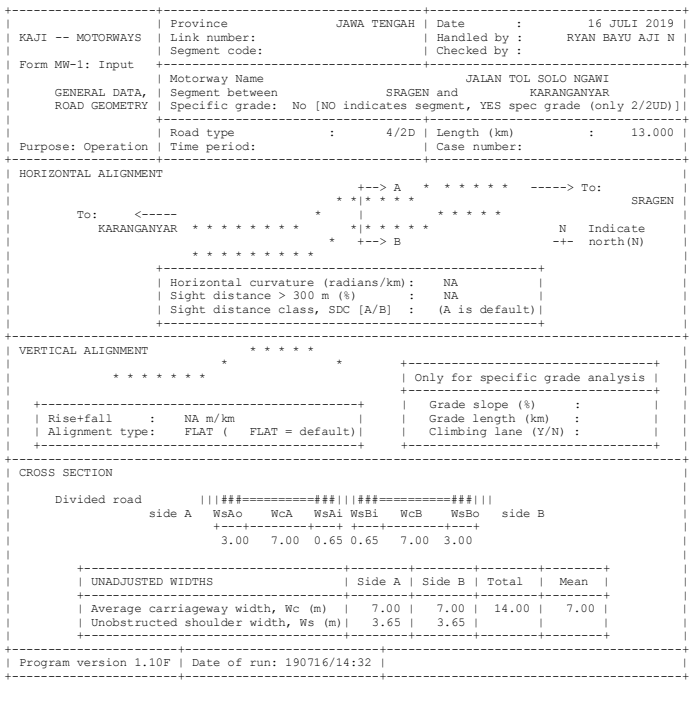
Case	Direction	Traffic flow, Q (pcu/h) (21)/(15) (21)	Degree of saturation DS=Q/C (22)	Actual speed, Vlv Fig D2:1/2 km/h (23)	Road segment length L, km (24)	Travel time, TT (24)/(23) sec (25)	ACTUAL SPEEDS other vehicles (km/h) MHV	LB	LT	Degree of bunching DB (31)	Direction Fig D3:1
A	1	429	0.093	85.55	13.000	547.00	68.05	87.50	63.19		
	2	388	0.084	85.79	13.000	545.47	68.24	87.74	63.37		
B	1	429	0.093	85.55	13.000	547.00	68.05	87.50	63.19		
	2	388	0.084	85.79	13.000	545.47	68.24	87.74	63.37		

Space for user remark: Only 2/2UD roads

Program version 1.10F | Date of run: 190716/14:26

Sumber : Hasil Analisis Software KAJI (2019)

Lampiran 19 Analisis Hasil Software KAJI Jalan Tol Senin Sore



KAJI -- MOTORWAYS	Province: JAWA TENGAH	Date :	16 JULI 2019
	Link number:	Handled by :	RYAN BAYU AJI N
	Segment code:	Checked by :	
Form MW-2: Input	Motorway Name: JALAN TOL SOLO NGAWI		
TRAFFIC FLOW	Segment between: SRAGEN and KARANGANYAR		
	Road type : 4/2D	Length (km) :	13.000
Purpose: Operation	Time period:	Case number:	

TRAFFIC DATA:

CASE A :

Type of traffic data	ANNUAL AVERAGE DAILY TRAFFIC		DIRECTIONAL SPLIT
CLASSIFIED-HOURLY	AADT (veh/day)	K-factor (default: 0.11)	Dir1 - Dir2 (default: 50 - 50)
(CLass/AAdt/UNclass)			NA - NA %

Traffic Composition(%)	LV (%)	MHV (%)	LB (%)	LT (%)	Total (%)
User values (normal values)	85.60 (63.0)	4.085 (25.0)	7.782 (8.0)	2.529 (4.0)	100.0 (100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck

Traffic flow data for whole segment analysis:

Row	Direc-tion	Light Vehicle	Med Heavy Veh	Large Bus	Large Truck	Total flow Q		
1.1		pce,1= 1.00	pce,1= 1.28	pce,1= 1.28	pce,1= 1.77			
1.2		pce,2= 1.00	pce,2= 1.28	pce,2= 1.28	pce,2= 1.76			
		veh/h	veh/h	veh/h	veh/h	Split (%)	veh/h	pcu/h
2	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(12)	(13)	(14)
3	Dir1	430	430	25	32	49	63	12	21	50.19	516	546
4	Dir2	450	450	17	22	31	40	14	25	49.80	512	537
5	Dir1+2	880	880	42	54	80	103	26	46		1028	1083
6	Note. If specific grade then				Directional split,SP=Q1/(Q1+Q2)=		50.19%	50.41%
7	direction1= uphill, direction2= downhill				Pcu-factor, Fpcu =			1.053

CASE B :

Type of traffic data	ANNUAL AVERAGE DAILY TRAFFIC		DIRECTIONAL SPLIT
CLASSIFIED-HOURLY	AADT (veh/day)	K-factor (normal: 0.11)	Dir1 - Dir2 (normal: 50 - 50)
(CLass/AAdt/UNclass)			NA - NA %

Traffic Composition(%)	LV (%)	MHV (%)	LB (%)	LT (%)	Total (%)
User values (normal values)	85.60 (63.0)	4.085 (25.0)	7.782 (8.0)	2.529 (4.0)	100.0 (100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck

Traffic flow data for whole segment analysis:

Row	Direc-tion	Light Vehicle	Med Heavy Veh	Large Bus	Large Truck	Total flow Q		
1.1		pce,1= 1.00	pce,1= 1.28	pce,1= 1.28	pce,1= 1.77			
1.2		pce,2= 1.00	pce,2= 1.28	pce,2= 1.28	pce,2= 1.76			
		veh/h	veh/h	veh/h	veh/h	Split (%)	veh/h	pcu/h
2	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(12)	(13)	(14)
3	Dir1	430	430	25	32	49	63	12	21	50.19	516	546
4	Dir2	450	450	17	22	31	40	14	25	49.80	512	537
5	Dir1+2	880	880	42	54	80	103	26	46		1028	1083
6	Note. If specific grade then				Directional split,SP=Q1/(Q1+Q2)=		50.19%	50.41%
7	direction1= uphill, direction2= downhill				Pcu-factor, Fpcu =			1.053

Program version 1.10F | Date of run: 190716/14:32 |

KAJI -- MOTORWAYS	Province Link number: Segment code:	JAWA TENGAH	Date : Handled by : Checked by :	16 JULI 2019 RYAN BAYU AJI N
Form MW-3: Analysis SPEED, CAPACITY	Motorway Name Segment between	JALAN TOL SOLO NGAWI SRAGEN and KARANGANYAR		
Purpose: Operation	Road type : Time period:	4/2D	Length (km) : Case number:	13.000

FREE FLOW SPEEDS

Option to enter free flow speeds, case A: No; case B: No

Case	Direction	Base free-flow speeds: FVo (km/h) Tab B-1:1 or B-1:2 Light	Base free-flow speeds: FVo (km/h) Tab B-1:1 or B-1:2 Other vehicles	Adjustment, width, FVw (km/h) Table B-2:1	FVo+FVw (km/h) and shoulder/carriageway (2)+(3)	Light vehicle (4*5*6)	Actual free-flow speeds: Other vehicle types (km/h) MHV	LB	LT	User FFV input:
		veh. (2)	MHV LB LT (3)		(4)	(7)				
A	1	88.0	70.0 90.0 65.0	0.0	88.0	88.00	70.00	90.00	65.00	None!
	2	88.0	70.0 90.0 65.0	0.0	88.0	88.00	70.00	90.00	65.00	None!
B	1	88.0	70.0 90.0 65.0	0.0	88.0	88.00	70.00	90.00	65.00	None!
	2	88.0	70.0 90.0 65.0	0.0	88.0	88.00	70.00	90.00	65.00	None!

Comments: Table B-1:1 used to get base free flow speed!

CAPACITY, C = Co x FCw x FCsp

Case	Direction	Base Capacity: Co pcu/h Table C-1:1 (11)	Adjustment factors for capacity: Carriageway width FCw Table C-2:1 (12)	Directional split FCsp Table C-3:1 (13)	Actual capacity C (pcu/h) (11)*(12)*(13) (15)
A	1	4600	1.000	1.000	4600
	2	4600	1.000	1.000	4600
B	1	4600	1.000	1.000	4600
	2	4600	1.000	1.000	4600

ACTUAL SPEED and TRAVEL TIME for light vehicles

DEGREE OF BUNCHING

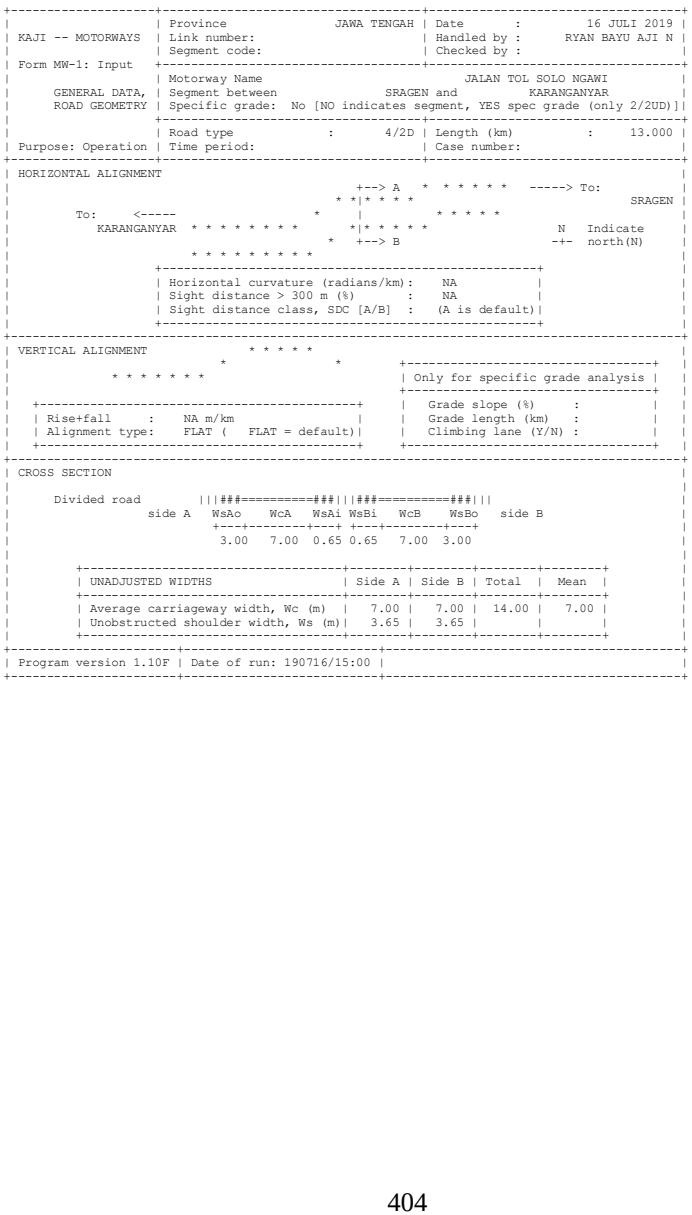
Case	Direction	Traffic flow, Q pcu/h (21)/(15) (21)	Degree of saturation DS=Q/C (22)	Actual speed, Vlv Fig D2:1/2 km/h (23)	Road segment length L, km (24)	Travel time, TT (24)/(23) sec (25)	ACTUAL SPEEDS other vehicles (km/h) MHV	LB	LT	Degree of bunching DB Fig D3:1 (31)
A	1	546	0.119	84.87	13.000	551.42	67.51	86.80	62.68	
	2	537	0.117	84.92	13.000	551.07	67.55	86.85	62.72	
B	1	546	0.119	84.87	13.000	551.42	67.51	86.80	62.68	
	2	537	0.117	84.92	13.000	551.07	67.55	86.85	62.72	

Space for user remark: Only 2/2UD roads

Program version 1.10F | Date of run: 190716/14:32

Sumber : Hasil Analisis Software KAJI (2019)

Lampiran 20 Analisis Hasil Software KAJI Jalan Tol Rabu Pagi



KAJI -- MOTORWAYS	Province: JAWA TENGAH Link number: Segment code:	Date : 16 JULI 2019 Handled by : RYAN BAYU AJI N Checked by :	
Form MW-2: Input	Motorway Name: JALAN TOL SOLO NGAWI		
TRAFFIC FLOW	Segment between: SRAGEN and KARANGANYAR		
Purpose: Operation	Road type : 4/2D Time period:	Length (km) : 13.000 Case number:	

TRAFFIC DATA:

CASE A :

Type of traffic data	ANNUAL AVERAGE DAILY TRAFFIC		DIRECTIONAL SPLIT
	AADT	K-factor	Dir1 - Dir2
CLASSIFIED-HOURLY	(veh/day)	(default: 0.11)	(default: 50 - 50)
(CLass/AAdt/UNclass)			NA - NA %

Traffic Composition(%)	LV (%)	MHV (%)	LB (%)	LT (%)	Total (%)
User values (normal values)	87.56 (63.0)	5.820 (25.0)	3.703 (8.0)	2.910 (4.0)	100.0 (100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck

Traffic flow data for whole segment analysis:

Row	Direction	Light Vehicle	Med Heavy Veh	Large Bus	Large Truck	Total flow Q		
1.1		pce,1= 1.00	pce,1= 1.26	pce,1= 1.26	pce,1= 1.71			
1.2		pce,2= 1.00	pce,2= 1.26	pce,2= 1.26	pce,2= 1.73			
		veh/h	veh/h	veh/h	veh/h	Split	veh/h	pcu/h
		pcu/h	pcu/h	pcu/h	pcu/h	(%)		
2	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(12)	(13)	(14)
3	Dir1	311	311	19	24	11	14	10	17	46.42	351	366
4	Dir2	351	351	25	32	17	22	12	21	53.57	405	426
5	Dir1+2	662	662	44	56	28	36	22	38		756	792
6	Note. If specific grade then direction1= uphill, direction2= downhill					Directional split,SP=Q1/(Q1+Q2)=		46.42%
7						Pcu-factor, Fpcu =		1.047

CASE B :

Type of traffic data	ANNUAL AVERAGE DAILY TRAFFIC		DIRECTIONAL SPLIT
	AADT	K-factor	Dir1 - Dir2
CLASSIFIED-HOURLY	(veh/day)	(normal: 0.11)	(normal: 50 - 50)
(CLass/AAdt/UNclass)			NA - NA %

Traffic Composition(%)	LV (%)	MHV (%)	LB (%)	LT (%)	Total (%)
User values (normal values)	87.56 (63.0)	5.820 (25.0)	3.703 (8.0)	2.910 (4.0)	100.0 (100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck

Traffic flow data for whole segment analysis:

Row	Direction	Light Vehicle	Med Heavy Veh	Large Bus	Large Truck	Total flow Q		
1.1		pce,1= 1.00	pce,1= 1.26	pce,1= 1.26	pce,1= 1.71			
1.2		pce,2= 1.00	pce,2= 1.26	pce,2= 1.26	pce,2= 1.73			
		veh/h	veh/h	veh/h	veh/h	Split	veh/h	pcu/h
		pcu/h	pcu/h	pcu/h	pcu/h	(%)		
2	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(12)	(13)	(14)
3	Dir1	311	311	19	24	11	14	10	17	46.42	351	366
4	Dir2	351	351	25	32	17	22	12	21	53.57	405	426
5	Dir1+2	662	662	44	56	28	36	22	38		756	792
6	Note. If specific grade then direction1= uphill, direction2= downhill					Directional split,SP=Q1/(Q1+Q2)=		46.42%
7						Pcu-factor, Fpcu =		1.047

Program version 1.10F | Date of run: 190716/15:00 |

KAJI -- MOTORWAYS	Province Link number: Segment code:	JAWA TENGAH	Date : Handled by : Checked by :	16 JULI 2019 RYAN BAYU AJI N
Form MW-3: Analysis SPEED, CAPACITY	Motorway Name Segment between	JALAN TOL SOLO NGAWI SRAGEN and KARANGANYAR		
Purpose: Operation	Road type : Time period:	4/2D	Length (km) : Case number:	13.000

FREE FLOW SPEEDS

Option to enter free flow speeds, case A: No; case B: No

Case	Direction	Base free-flow speeds FVo (km/h) Light	Base free-flow speeds FVo (km/h) Other vehicles	Adjustment, Table B-2:1 (km/h)	FVo+FVw (2)+(3) (km/h)	Actual free-flow speeds Light vehicle (4*5*6)	Actual free-flow speeds Other vehicle types MHV	Actual free-flow speeds Other vehicle types LB	Actual free-flow speeds Other vehicle types LT	User FFV input:
		(2)	(2)	(3)	(4)	(7)				
A	1	88.0	70.0	0.0	88.0	88.00	70.00	90.00	65.00	None!
	2	88.0	70.0	0.0	88.0	88.00	70.00	90.00	65.00	None!
B	1	88.0	70.0	0.0	88.0	88.00	70.00	90.00	65.00	None!
	2	88.0	70.0	0.0	88.0	88.00	70.00	90.00	65.00	None!

Comments: Table B-1:1 used to get base free flow speed!

CAPACITY, C = Co x FCw x FCsp

Case	Direction	Base Capacity Co pcu/h (11)	Adjustment factors for capacity Carriageway width FCw Table C-2:1 (12)	Adjustment factors for capacity Directional split FCsp Table C-3:1 (13)	Actual capacity C (pcu/h) (11)*(12)*(13) (15)
A	1	4600	1.000	1.000	4600
	2	4600	1.000	1.000	4600
B	1	4600	1.000	1.000	4600
	2	4600	1.000	1.000	4600

ACTUAL SPEED and TRAVEL TIME for light vehicles — DEGREE OF BUNCHING

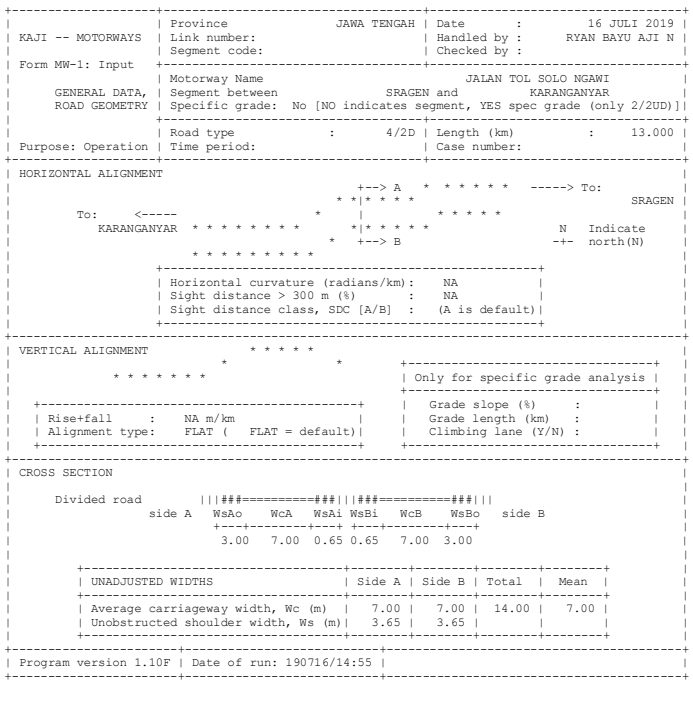
Case	Direction	Traffic flow, Q Form IR-2 pcu/h (21)	Degree of saturation DS=Q/C (21)/(15) (22)	Actual speed, Vlv Fig D2:1/2 km/h (23)	Road segment length L, km (24)	Travel time, TT (24)/(23) sec (25)	ACTUAL SPEEDS other vehicles (km/h) MHV	ACTUAL SPEEDS other vehicles (km/h) LB	ACTUAL SPEEDS other vehicles (km/h) LT	Degree of bunching DB (31)	Degree of bunching Fig D3:1
A	1	366	0.080	85.92	13.000	544.66	68.34	87.87	63.46		
	2	426	0.093	85.57	13.000	546.88	68.07	87.52	63.20		
B	1	366	0.080	85.92	13.000	544.66	68.34	87.87	63.46		
	2	426	0.093	85.57	13.000	546.88	68.07	87.52	63.20		

Space for user remark: Only 2/2UD roads

Program version 1.10F | Date of run: 190716/15:00

Sumber : Hasil Analisis Software KAJI (2019)

Lampiran 21 Analisis Hasil Software KAJI Jalan Tol Rabu Siang



KAJI -- MOTORWAYS	Province: JAWA TENGAH Link number: Segment code:	Date : 16 JULI 2019 Handled by : RYAN BAYU AJI N Checked by :	
Form MW-2: Input	Motorway Name: JALAN TOL SOLO NGAWI		
TRAFFIC FLOW	Segment between: SRAGEN and KARANGANYAR		
Purpose: Operation	Road type : 4/2D Time period:	Length (km) : 13.000 Case number:	

TRAFFIC DATA:

CASE A :

Type of traffic data	ANNUAL AVERAGE DAILY TRAFFIC		DIRECTIONAL SPLIT
CLASSIFIED-HOURLY	AADT (veh/day)	K-factor (default: 0.11)	Dir1 - Dir2 (default: 50 - 50)
(CLass/AAdt/UNclass)			NA - NA %

Traffic Composition(%)	LV (%)	MHV (%)	LB (%)	LT (%)	Total (%)
User values (normal values)	89.60 (63.0)	3.295 (25.0)	3.548 (8.0)	3.548 (4.0)	100.0 (100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck

Traffic flow data for whole segment analysis:

Row	Direction	Light Vehicle		Med Heavy Veh		Large Bus		Large Truck		Total flow Q		
		pce,1= 1.00		pce,1= 1.27		pce,1= 1.27		pce,1= 1.74				
1.1		pce,2= 1.00		pce,2= 1.26		pce,2= 1.26		pce,2= 1.71				
		veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	Split (%)	veh/h	pcu/h
2	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(12)	(13)	(14)
3	Dir1	396	396	9	11	11	14	19	33	55.13	435	454
4	Dir2	311	311	17	21	17	21	9	15	44.86	354	368
5	Dir1+2	707	707	26	32	28	35	28	48		789	822
6	Note. If specific grade then direction1= uphill, direction2= downhill							Directional split,SP=Q1/(Q1+Q2)= Pcu-factor, Fpcu =			55.13%	55.23%
7												1.041

CASE B :

Type of traffic data	ANNUAL AVERAGE DAILY TRAFFIC		DIRECTIONAL SPLIT
CLASSIFIED-HOURLY	AADT (veh/day)	K-factor (normal: 0.11)	Dir1 - Dir2 (normal: 50 - 50)
(CLass/AAdt/UNclass)			NA - NA %

Traffic Composition(%)	LV (%)	MHV (%)	LB (%)	LT (%)	Total (%)
User values (normal values)	90.10 (63.0)	3.136 (25.0)	3.377 (8.0)	3.377 (4.0)	100.0 (100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck

Traffic flow data for whole segment analysis:

Row	Direction	Light Vehicle		Med Heavy Veh		Large Bus		Large Truck		Total flow Q		
		pce,1= 1.00		pce,1= 1.27		pce,1= 1.27		pce,1= 1.74				
1.1		pce,2= 1.00		pce,2= 1.26		pce,2= 1.26		pce,2= 1.73				
		veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	Split (%)	veh/h	pcu/h
2	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(12)	(13)	(14)
3	Dir1	396	396	9	11	11	14	19	33	52.47	435	454
4	Dir2	351	351	17	21	17	21	9	16	47.52	394	409
5	Dir1+2	747	747	26	32	28	35	28	49		829	863
6	Note. If specific grade then direction1= uphill, direction2= downhill							Directional split,SP=Q1/(Q1+Q2)= Pcu-factor, Fpcu =			52.47%	52.60%
7												1.041

Program version 1.10F | Date of run: 190716/14:55 |

KAJI -- MOTORWAYS	Province Link number: Segment code:	JAWA TENGAH	Date : Handled by : Checked by :	16 JULI 2019 RYAN BAYU AJI N
Form MW-3: Analysis SPEED, CAPACITY	Motorway Name Segment between		JALAN TOL SOLO NGAWI SRAGEN and KARANGANYAR	
Purpose: Operation	Road type : Time period:	4/2D	Length (km) : Case number:	13.000

FREE FLOW SPEEDS

Option to enter free flow speeds, case A: No; case B: No

Case	Direction	Base free-flow speeds FVo (km/h) Tab B-1:1 or B-1:2 Light	Other vehicles	Adjustment, width, FVw (km/h) and shoulder Table B-2:1 (km/h)	FVo+FVw (2)+(3) (km/h)	Light vehicle (4*5*6)	Actual free-flow speeds (km/h) Other vehicle types Light	MHV	LB	LT	User FFV input:
		veh. (2)	MHV LB LT	(3)	(4)	(7)					
A	1	88.0	70.0 90.0 65.0	0.0	88.0	88.00	70.00	90.00	65.00	None!	
	2	88.0	70.0 90.0 65.0	0.0	88.0	88.00	70.00	90.00	65.00	None!	
B	1	88.0	70.0 90.0 65.0	0.0	88.0	88.00	70.00	90.00	65.00	None!	
	2	88.0	70.0 90.0 65.0	0.0	88.0	88.00	70.00	90.00	65.00	None!	

Comments: Table B-1:1 used to get base free flow speed!

CAPACITY, C = Co x FCw x FCsp

Case	Direction	Base Capacity Co Table C-1:1 pcu/h (11)	Adjustment factors for capacity Carriageway width FCw Table C-2:1 (12)	Directional split FCsp Table C-3:1 (13)	Actual capacity C (pcu/h) (11)*(12)*(13) (15)
A	1	4600	1.000	1.000	4600
	2	4600	1.000	1.000	4600
B	1	4600	1.000	1.000	4600
	2	4600	1.000	1.000	4600

ACTUAL SPEED and TRAVEL TIME for light vehicles — DEGREE OF BUNCHING

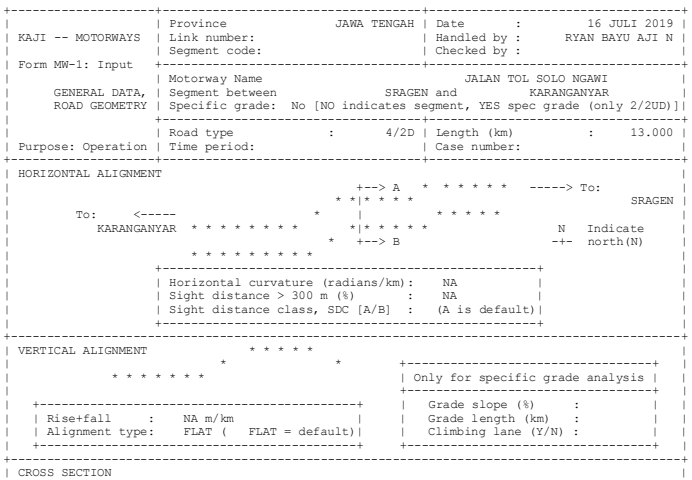
Case	Direction	Traffic flow, Q Form IR-2 pcu/h (21)	Degree of saturation DS=Q/C (21)/(15) (22)	Actual speed, Vlv Fig D2:1/2 km/h (23)	Road segment length L, km (24)	Travel time, TT (24)/(23) sec (25)	ACTUAL SPEEDS other vehicles (km/h) MHV	LB	LT	Degree of bunching DB Fig D3:1 (31)
A	1	454	0.099	85.41	13.000	547.92	67.94	87.35	63.08	
	2	368	0.080	85.91	13.000	544.74	68.33	87.86	63.45	
B	1	454	0.099	85.41	13.000	547.92	67.94	87.35	63.08	
	2	409	0.089	85.67	13.000	546.24	68.15	87.62	63.28	

Space for user remark: Only 2/2UD roads

Program version 1.10F | Date of run: 190716/14:55

Sumber : Hasil Analisis Software KAJI (2019)

Lampiran 22 Analisis Hasil Software KAJI Jalan Tol Rabu Sore



KAJI -- MOTORWAYS	Province: JAWA TENGAH	Date :	16 JULI 2019
	Link number:	Handled by :	RYAN BAYU AJI N
	Segment code:	Checked by :	
Form MW-2: Input	Motorway Name: JALAN TOL SOLO NGAWI		
TRAFFIC FLOW	Segment between: SRAGEN and KARANGANYAR		
	Road type : 4/2D	Length (km) :	13.000
Purpose: Operation	Time period:	Case number:	

TRAFFIC DATA:

CASE A :

Type of traffic data	ANNUAL AVERAGE DAILY TRAFFIC		DIRECTIONAL SPLIT
CLASSIFIED-HOURLY	AADT (veh/day)	K-factor (default: 0.11)	Dir1 - Dir2 (default: 50 - 50)
(CLass/AAdt/UNclass)			NA - NA %

Traffic Composition(%)	LV (%)	MHV (%)	LB (%)	LT (%)	Total (%)
User values (normal values)	84.39 (63.0)	5.499 (25.0)	5.162 (8.0)	4.938 (4.0)	100.0 (100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck

Traffic flow data for whole segment analysis:

Row	Direction	Light Vehicle	Med Heavy Veh	Large Bus	Large Truck	Total flow Q		
1.1		pce,1= 1.00	pce,1= 1.28	pce,1= 1.28	pce,1= 1.75			
1.2		pce,2= 1.00	pce,2= 1.27	pce,2= 1.27	pce,2= 1.73			
		veh/h	veh/h	veh/h	veh/h	Split (%)	veh/h	pcu/h
2	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(12)	(13)	(14)
3	Dir1	401	401	21	27	21	27	28	49	52.86	471	504
4	Dir2	351	351	28	35	25	32	16	28	47.13	420	446
5	Dir1+2	752	752	49	62	46	59	44	77		891	950
6	Note. If specific grade then direction1= uphill, direction2= downhill					Directional split,SP=Q1/(Q1+Q2)=		52.86%
7						Pcu-factor, Fpcu =		1.066

CASE B :

Type of traffic data	ANNUAL AVERAGE DAILY TRAFFIC		DIRECTIONAL SPLIT
CLASSIFIED-HOURLY	AADT (veh/day)	K-factor (normal: 0.11)	Dir1 - Dir2 (normal: 50 - 50)
(CLass/AAdt/UNclass)			NA - NA %

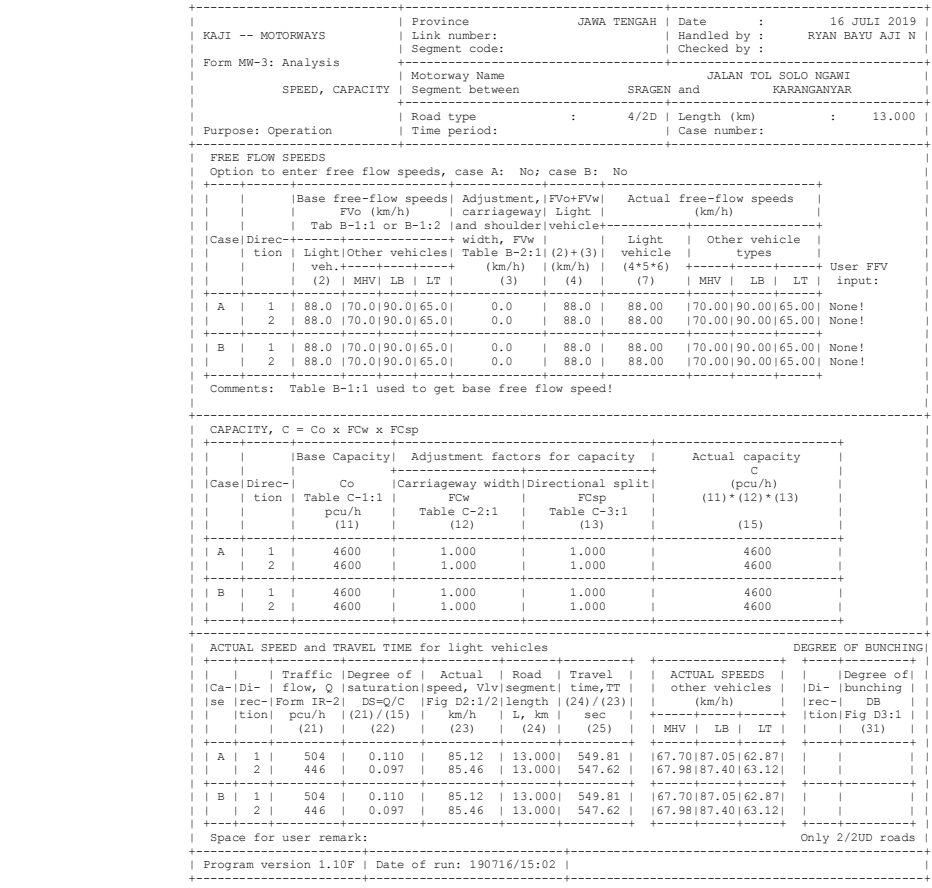
Traffic Composition(%)	LV (%)	MHV (%)	LB (%)	LT (%)	Total (%)
User values (normal values)	84.39 (63.0)	5.499 (25.0)	5.162 (8.0)	4.938 (4.0)	100.0 (100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck

Traffic flow data for whole segment analysis:

Row	Direction	Light Vehicle	Med Heavy Veh	Large Bus	Large Truck	Total flow Q		
1.1		pce,1= 1.00	pce,1= 1.28	pce,1= 1.28	pce,1= 1.75			
1.2		pce,2= 1.00	pce,2= 1.27	pce,2= 1.27	pce,2= 1.73			
		veh/h	veh/h	veh/h	veh/h	Split (%)	veh/h	pcu/h
2	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(12)	(13)	(14)
3	Dir1	401	401	21	27	21	27	28	49	52.86	471	504
4	Dir2	351	351	28	35	25	32	16	28	47.13	420	446
5	Dir1+2	752	752	49	62	46	59	44	77		891	950
6	Note. If specific grade then direction1= uphill, direction2= downhill					Directional split,SP=Q1/(Q1+Q2)=		52.86%
7						Pcu-factor, Fpcu =		1.066

Program version 1.10F | Date of run: 190716/15:02 |



KAJI -- MOTORWAYS	Province: JAWA TENGAH Link number: Segment code:	Date : 16 JULI 2019 Handled by : RYAN BAYU AJI N Checked by :	
Form MW-3: Analysis SPEED, CAPACITY	Motorway Name: JALAN TOL SOLO NGAWI Segment between: SRAGEN and KARANGANYAR		
Purpose: Operation	Road type : 4/2D Time period:	Length (km) : 13.000 Case number:	

FREE FLOW SPEEDS

Option to enter free flow speeds, case A: No; case B: No

Case	Direction	Base free-flow speeds: FVo (km/h) Tab B-1:1 or B-1:2: Light veh. (2)	MHV (2)	LB (2)	LT (2)	Adjustment, width, FVw (km/h) and shoulder: Table B-2:1 (3)	FVo+FVw: carriageway: Light vehicle (4)	Actual free-flow speeds (km/h): Light vehicle (4*5*6)	MHV	LB	LT	Other vehicle types: User FFV input:
A	1	88.0	70.0	90.0	65.0	0.0	88.0	88.00	70.00	90.00	65.00	None!
	2	88.0	70.0	90.0	65.0	0.0	88.0	88.00	70.00	90.00	65.00	None!
B	1	88.0	70.0	90.0	65.0	0.0	88.0	88.00	70.00	90.00	65.00	None!
	2	88.0	70.0	90.0	65.0	0.0	88.0	88.00	70.00	90.00	65.00	None!

Comments: Table B-1:1 used to get base free flow speed!

CAPACITY, C = Co x FCw x FCsp

Case	Direction	Base Capacity: Co (pcu/h) Table C-1:1 (11)	Adjustment factors for capacity: Carriageway width FCw Table C-2:1 (12)	Directional split FCsp Table C-3:1 (13)	Actual capacity C (pcu/h) (11)*(12)*(13) (15)
A	1	4600	1.000	1.000	4600
	2	4600	1.000	1.000	4600
B	1	4600	1.000	1.000	4600
	2	4600	1.000	1.000	4600

ACTUAL SPEED and TRAVEL TIME for light vehicles — DEGREE OF BUNCHING

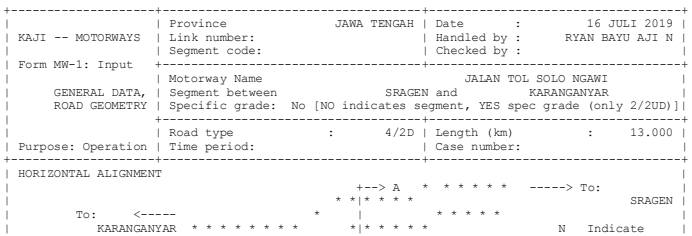
Case	Direction	Traffic flow, Q (pcu/h) (21)	Degree of saturation DS=Q/C (21)/(15) (22)	Actual speed, Vlv (km/h) Fig D2:1/2 (23)	Road segment length, L, km (24)	Travel time, TT (24)/(23) sec (25)	ACTUAL SPEEDS other vehicles (km/h): MHV	LB	LT	Degree of Di-bunching DB Fig D3:1 (31)
A	1	504	0.110	85.12	13.000	549.81	67.70	87.05	62.87	
	2	446	0.097	85.46	13.000	547.62	67.98	87.40	63.12	
B	1	504	0.110	85.12	13.000	549.81	67.70	87.05	62.87	
	2	446	0.097	85.46	13.000	547.62	67.98	87.40	63.12	

Space for user remark: Only 2/2UD roads

Program version 1.10F | Date of run: 190716/15:02

Sumber : Hasil Analisis Software KAJI (2019)

Lampiran 23 Analisis Hasil Software KAJI Jalan Tol Minggu Pagi



KAJI -- MOTORWAYS	Province: JAWA TENGAH Link number: Segment code:	Date : 16 JULI 2019 Handled by : RYAN BAYU AJI N Checked by :	
Form MW-2: Input TRAFFIC FLOW	Motorway Name: JALAN TOL SOLO NGAWI Segment between: SRAGEN and KARANGANYAR		
Purpose: Operation	Road type : 4/2D Time period:	Length (km) : 13.000 Case number:	

TRAFFIC DATA:

CASE A :

Type of traffic data (CLASS/AAdt/UNclass)	ANNUAL AVERAGE DAILY TRAFFIC: AADT (veh/day)	K-factor (default: 0.11)	DIRECTIONAL SPLIT: Dir1 - Dir2 (default: 50 - 50)
CLASSIFIED-HOURLY			NA - NA %

Traffic Composition(%)	LV (%)	MHV (%)	LB (%)	LT (%)	Total (%)
User values (normal values)	77.27 (63.0)	11.86 (25.0)	2.272 (8.0)	8.585 (4.0)	100.0 (100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck

Traffic flow data for whole segment analysis:

Row	Direction	Light Vehicle pce,1= 1.00 pce,2= 1.00 veh/h	Light Vehicle pcu/h	Med Heavy Veh pce,1= 1.23 pce,2= 1.23 veh/h	Med Heavy Veh pcu/h	Large Bus pce,1= 1.23 pce,2= 1.23 veh/h	Large Bus pcu/h	Large Truck pce,1= 1.66 pce,2= 1.66 veh/h	Large Truck pcu/h	Total flow Q Split (%)	Total flow Q veh/h	Total flow Q pcu/h
2	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(12)	(13)	(14)
3	Dir1	149	149	25	31	6	7	15	25	49.24	195	212
4	Dir2	157	157	22	27	3	4	19	32	50.75	201	220
5	Dir1+2	306	306	47	58	9	11	34	57		396	432
6	Note. If specific grade then direction1= uphill, direction2= downhill							Directional split,SP=Q1/(Q1+Q2)=		49.24%	49.07%	
7								Pcu-factor, Fpcu =			1.090	

CASE B :

Type of traffic data (CLASS/AAdt/UNclass)	ANNUAL AVERAGE DAILY TRAFFIC: AADT (veh/day)	K-factor (normal: 0.11)	DIRECTIONAL SPLIT: Dir1 - Dir2 (normal: 50 - 50)
CLASSIFIED-HOURLY			NA - NA %

Traffic Composition(%)	LV (%)	MHV (%)	LB (%)	LT (%)	Total (%)
User values (normal values)	77.27 (63.0)	11.86 (25.0)	2.272 (8.0)	8.585 (4.0)	100.0 (100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck

Traffic flow data for whole segment analysis:

Row	Direction	Light Vehicle pce,1= 1.00 pce,2= 1.00 veh/h	Light Vehicle pcu/h	Med Heavy Veh pce,1= 1.23 pce,2= 1.23 veh/h	Med Heavy Veh pcu/h	Large Bus pce,1= 1.23 pce,2= 1.23 veh/h	Large Bus pcu/h	Large Truck pce,1= 1.66 pce,2= 1.66 veh/h	Large Truck pcu/h	Total flow Q Split (%)	Total flow Q veh/h	Total flow Q pcu/h
2	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(12)	(13)	(14)
3	Dir1	149	149	25	31	6	7	15	25	49.24	195	212
4	Dir2	157	157	22	27	3	4	19	32	50.75	201	220
5	Dir1+2	306	306	47	58	9	11	34	57		396	432
6	Note. If specific grade then direction1= uphill, direction2= downhill							Directional split,SP=Q1/(Q1+Q2)=		49.24%	49.07%	
7								Pcu-factor, Fpcu =			1.090	

Program version 1.10F | Date of run: 190716/20:41 |

KAJI -- MOTORWAYS	Province Link number: Segment code:	JAWA TENGAH	Date : Handled by : Checked by :	16 JULI 2019 RYAN BAYU AJI N
Form MW-3: Analysis SPEED, CAPACITY	Motorway Name Segment between		JALAN TOL SOLO NGAWI SRAGEN and KARANGANYAR	
Purpose: Operation	Road type : Time period:	4/2D	Length (km) : Case number:	13.000

FREE FLOW SPEEDS

Option to enter free flow speeds, case A: No; case B: No

Case	Direction	Base free-flow speeds FVo (km/h) Tab B-1:1 or B-1:2 Light	Other vehicles	Adjustment, width, FVw (km/h) Table B-2:1	FVo+FVw and shoulder (2)+(3) (km/h)	Light vehicle Light (4*5*6)	Actual free-flow speeds (km/h) Other vehicle types Light	MHV	LB	LT	User FFV input:
		veh. (2)	MHV	LB	LT	(3)	(4)	(7)	MHV	LB	LT	
A	1	88.0	70.0	90.0	65.0	0.0	88.0	88.00	70.00	90.00	65.00	None!
	2	88.0	70.0	90.0	65.0	0.0	88.0	88.00	70.00	90.00	65.00	None!
B	1	88.0	70.0	90.0	65.0	0.0	88.0	88.00	70.00	90.00	65.00	None!
	2	88.0	70.0	90.0	65.0	0.0	88.0	88.00	70.00	90.00	65.00	None!

Comments: Table B-1:1 used to get base free flow speed!

CAPACITY, C = Co x FCw x FCsp

Case	Direction	Base Capacity Co pcu/h (11)	Adjustment factors for capacity Carriageway width FCw Table C-1:1 (12)	Directional split FCsp Table C-2:1 (13)	Table C-3:1	Actual capacity C (pcu/h) (11)*(12)*(13) (15)
A	1	4600	1.000	1.000		4600
	2	4600	1.000	1.000		4600
B	1	4600	1.000	1.000		4600
	2	4600	1.000	1.000		4600

ACTUAL SPEED and TRAVEL TIME for light vehicles — DEGREE OF BUNCHING

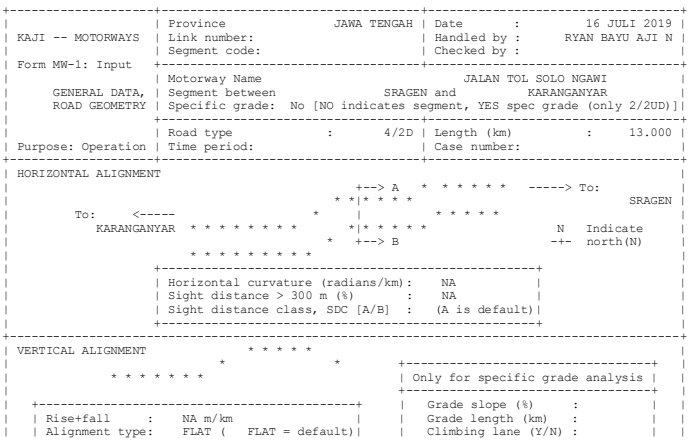
Case	Direction	Traffic flow, Q pcu/h (21)/(15) (21)	Degree of saturation DS=Q/C (22)	Actual speed, Vlv km/h (23)	Road segment length L, km (24)	Travel time, TT (24)/(23) sec (25)	ACTUAL SPEEDS other vehicles (km/h) MHV	LB	LT	Degree of Di-bunching DB (31)
A	1	212	0.046	86.80	13.000	539.12	69.05	88.78	64.12	
	2	220	0.048	86.76	13.000	539.40	69.01	88.73	64.08	
B	1	212	0.046	86.80	13.000	539.12	69.05	88.78	64.12	
	2	220	0.048	86.76	13.000	539.40	69.01	88.73	64.08	

Space for user remark: Only 2/2UD roads

Program version 1.10F | Date of run: 190716/20:41

Sumber : Hasil Analisis Software KAJI (2019)

Lampiran 24 Analisis Hasil Software KAJI Jalan Tol Minggu Siang



KAJI -- MOTORWAYS	Province: JAWA TENGAH	Date :	16 JULI 2019
	Link number:	Handled by :	RYAN BAYU AJI N
	Segment code:	Checked by :	
Form MW-2: Input	Motorway Name: JALAN TOL SOLO NGAWI		
TRAFFIC FLOW	Segment between: SRAGEN and KARANGANYAR		
	Road type : 4/2D	Length (km) :	13.000
Purpose: Operation	Time period:	Case number:	

TRAFFIC DATA:

CASE A :

Type of traffic data	ANNUAL AVERAGE DAILY TRAFFIC		DIRECTIONAL SPLIT
CLASSIFIED-HOURLY	AADT (veh/day)	K-factor (default: 0.11)	Dir1 - Dir2 (default: 50 - 50)
(CLass/AAdt/UNclass)			NA - NA %

Traffic Composition(%)	LV (%)	MHV (%)	LB (%)	LT (%)	Total (%)
User values (normal values)	87.56 (63.0)	5.769 (25.0)	2.564 (8.0)	4.102 (4.0)	100.0 (100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck

Traffic flow data for whole segment analysis:

Row	Direc-tion	Light Vehicle	Med Heavy Veh	Large Bus	Large Truck	Total flow Q		
		1.1 pce,1= 1.00 1.2 pce,2= 1.00	pce,1= 1.26 pce,2= 1.26	pce,1= 1.26 pce,2= 1.26	pce,1= 1.72 pce,2= 1.73	Split	veh/h	pcu/h
		veh/h	veh/h	veh/h	veh/h	%		
2	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(12)	(13)	(14)
3	Dir1	346	346	22	28	4	5	15	26	49.61	387	405
4	Dir2	337	337	23	29	16	20	17	29	50.38	393	415
5	Dir1+2	683	683	45	57	20	25	32	55		780	820
6	Note. If specific grade then direction1= uphill, direction2= downhill				Directional split,SP=Q1/(Q1+Q2)=		49.61%	49.39%
7					Pcu-factor, Fpcu =			1.051

CASE B :

Type of traffic data	ANNUAL AVERAGE DAILY TRAFFIC		DIRECTIONAL SPLIT
CLASSIFIED-HOURLY	AADT (veh/day)	K-factor (normal: 0.11)	Dir1 - Dir2 (normal: 50 - 50)
(CLass/AAdt/UNclass)			NA - NA %

Traffic Composition(%)	LV (%)	MHV (%)	LB (%)	LT (%)	Total (%)
User values (normal values)	87.56 (63.0)	5.769 (25.0)	2.564 (8.0)	4.102 (4.0)	100.0 (100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck

Traffic flow data for whole segment analysis:

Row	Direc-tion	Light Vehicle	Med Heavy Veh	Large Bus	Large Truck	Total flow Q		
		1.1 pce,1= 1.00 1.2 pce,2= 1.00	pce,1= 1.26 pce,2= 1.26	pce,1= 1.26 pce,2= 1.26	pce,1= 1.72 pce,2= 1.73	Split	veh/h	pcu/h
		veh/h	veh/h	veh/h	veh/h	%		
2	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(12)	(13)	(14)
3	Dir1	346	346	22	28	4	5	15	26	49.61	387	405
4	Dir2	337	337	23	29	16	20	17	29	50.38	393	415
5	Dir1+2	683	683	45	57	20	25	32	55		780	820
6	Note. If specific grade then direction1= uphill, direction2= downhill				Directional split,SP=Q1/(Q1+Q2)=		49.61%	49.39%
7					Pcu-factor, Fpcu =			1.051

Program version 1.10F | Date of run: 190716/20:59 |

KAJI -- MOTORWAYS	Province Link number: Segment code:	JAWA TENGAH	Date : Handled by : Checked by :	16 JULI 2019 RYAN BAYU AJI N
Form MW-3: Analysis SPEED, CAPACITY	Motorway Name Segment between		JALAN TOL SOLO NGAWI SRAGEN and KARANGANYAR	
Purpose: Operation	Road type : Time period:	4/2D	Length (km) : Case number:	13.000

FREE FLOW SPEEDS

Option to enter free flow speeds, case A: No; case B: No

Case	Direction	Base free-flow speeds FVo (km/h) Tab B-1:1 or B-1:2 Light	Other vehicle	LB	LT	Adjustment, width, FVw (km/h)	FVo+FVw and shoulder Table B-2:1 (km/h)	Light carriageway (2)+(3)	Actual free-flow speeds Light vehicle (4*5*6)	Other vehicle types MHV	LB	LT	User FFV input:
		(2)	MHV			(3)	(4)		(7)				
A	1	88.0	70.0	90.0	65.0	0.0	88.0	88.0	88.00	70.00	90.00	65.00	None!
	2	88.0	70.0	90.0	65.0	0.0	88.0	88.0	88.00	70.00	90.00	65.00	None!
B	1	88.0	70.0	90.0	65.0	0.0	88.0	88.0	88.00	70.00	90.00	65.00	None!
	2	88.0	70.0	90.0	65.0	0.0	88.0	88.0	88.00	70.00	90.00	65.00	None!

Comments: Table B-1:1 used to get base free flow speed!

CAPACITY, C = Co x FCw x FCsp

Case	Direction	Base Capacity Co Table C-1:1 pcu/h (11)	Adjustment factors for capacity Carriageway width FCw Table C-2:1 (12)	Directional split FCsp Table C-3:1 (13)	Actual capacity C (pcu/h) (11)*(12)*(13) (15)
A	1	4600	1.000	1.000	4600
	2	4600	1.000	1.000	4600
B	1	4600	1.000	1.000	4600
	2	4600	1.000	1.000	4600

ACTUAL SPEED and TRAVEL TIME for light vehicles — DEGREE OF BUNCHING

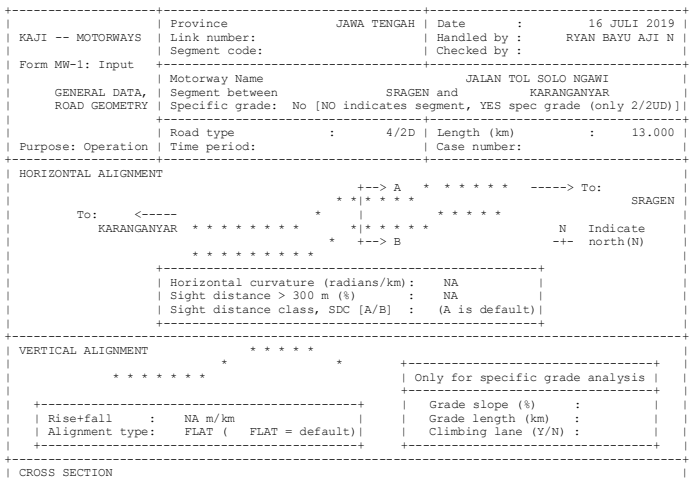
Case	Direction	Traffic flow, Q Form IR-2 pcu/h (21)	Degree of saturation DS=Q/C (21)/(15) (22)	Actual speed, Vlv Fig D2:1/2 km/h (23)	Road segment length L, km (24)	Travel time,TT (24)/(23) sec (25)	ACTUAL SPEEDS other vehicles (km/h) MHV	LB	LT	Degree of bunching DB Fig D3:1 (31)
A	1	405	0.088	85.70	13.000	546.09	68.17	87.64	63.30	
	2	415	0.090	85.64	13.000	546.47	68.12	87.58	63.25	
B	1	405	0.088	85.70	13.000	546.09	68.17	87.64	63.30	
	2	415	0.090	85.64	13.000	546.47	68.12	87.58	63.25	

Space for user remark: Only 2/2UD roads

Program version 1.10F | Date of run: 190716/20:59

Sumber : Hasil Analisis Software KAJI (2019)

Lampiran 25 Analisis Hasil Software KAJI Jalan Tol Minggu Sore



KAJI -- MOTORWAYS	Province: JAWA TENGAH Link number: Segment code:	Date : 16 JULI 2019 Handled by : RYAN BAYU AJI N Checked by :	
Form MW-2: Input	Motorway Name: JALAN TOL SOLO NGAWI		
TRAFFIC FLOW	Segment between: SRAGEN and KARANGANYAR		
Purpose: Operation	Road type : 4/2D Time period:	Length (km) : 13.000 Case number:	

TRAFFIC DATA:

CASE A :

Type of traffic data (CLass/AAdt/UNclass)	ANNUAL AVERAGE DAILY TRAFFIC: AADT (veh/day)	K-factor (default: 0.11)	DIRECTIONAL SPLIT: Dir1 - Dir2 (default: 50 - 50)
CLASSIFIED-HOURLY			NA - NA %

Traffic Composition(%)	LV (%)	MHV (%)	LB (%)	LT (%)	Total (%)
User values (normal values)	89.26 (63.0)	4.112 (25.0)	2.589 (8.0)	4.036 (4.0)	100.0 (100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck

Traffic flow data for whole segment analysis:

Row	Direction	Light Vehicle pce,1= 1.00 pce,2= 1.00 veh/h	Light Vehicle pcu/h	Med Heavy Veh pce,1= 1.32 pce,2= 1.29 veh/h	Med Heavy Veh pcu/h	Large Bus pce,1= 1.32 pce,2= 1.29 veh/h	Large Bus pcu/h	Large Truck pce,1= 1.83 pce,2= 1.79 veh/h	Large Truck pcu/h	Total flow Q Split (%)	Total flow Q veh/h	Total flow Q pcu/h
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(12)	(13)	(14)
3	Dir1	663	663	24	32	13	17	24	44	55.14	724	756
4	Dir2	509	509	30	39	21	27	29	52	44.85	589	627
5	Dir1+2	1172	1172	54	71	34	44	53	96		1313	1383
6	Note. If specific grade then direction1= uphill, direction2= downhill							Directional split,SP=Q1/(Q1+Q2)= Pcu-factor, Fpcu =			55.14%	54.66%
7												1.053

CASE B :

Type of traffic data (CLass/AAdt/UNclass)	ANNUAL AVERAGE DAILY TRAFFIC: AADT (veh/day)	K-factor (normal: 0.11)	DIRECTIONAL SPLIT: Dir1 - Dir2 (normal: 50 - 50)
CLASSIFIED-HOURLY			NA - NA %

Traffic Composition(%)	LV (%)	MHV (%)	LB (%)	LT (%)	Total (%)
User values (normal values)	89.26 (63.0)	4.112 (25.0)	2.589 (8.0)	4.036 (4.0)	100.0 (100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck

Traffic flow data for whole segment analysis:

Row	Direction	Light Vehicle pce,1= 1.00 pce,2= 1.00 veh/h	Light Vehicle pcu/h	Med Heavy Veh pce,1= 1.32 pce,2= 1.29 veh/h	Med Heavy Veh pcu/h	Large Bus pce,1= 1.32 pce,2= 1.29 veh/h	Large Bus pcu/h	Large Truck pce,1= 1.83 pce,2= 1.79 veh/h	Large Truck pcu/h	Total flow Q Split (%)	Total flow Q veh/h	Total flow Q pcu/h
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(12)	(13)	(14)
3	Dir1	663	663	24	32	13	17	24	44	55.14	724	756
4	Dir2	509	509	30	39	21	27	29	52	44.85	589	627
5	Dir1+2	1172	1172	54	71	34	44	53	96		1313	1383
6	Note. If specific grade then direction1= uphill, direction2= downhill							Directional split,SP=Q1/(Q1+Q2)= Pcu-factor, Fpcu =			55.14%	54.66%
7												1.053

Program version 1.10F | Date of run: 190716/20:55 |

KAJI -- MOTORWAYS	Province Link number: Segment code:	JAWA TENGAH	Date : Handled by : Checked by :	16 JULI 2019 RYAN BAYU AJI N
Form MW-3: Analysis SPEED, CAPACITY	Motorway Name Segment between	JALAN TOL SOLO NGAWI SRAGEN and KARANGANYAR		
Purpose: Operation	Road type : Time period:	4/2D	Length (km) : Case number:	13.000

FREE FLOW SPEEDS

Option to enter free flow speeds, case A: No; case B: No

Case	Direction	Base free-flow speeds: FVo (km/h) Light veh.	Base free-flow speeds: FVo (km/h) Other vehicles veh.	Base free-flow speeds: FVo (km/h) LB	Base free-flow speeds: FVo (km/h) LT	Adjustment, FVo+FVw: Tab B-1:1 or B-1:2 (2)	Adjustment, FVo+FVw: width, FVw (km/h) MHV	Adjustment, FVo+FVw: Table B-2:1 (3)	Adjustment, FVo+FVw: (2)+(3) (km/h) (4)	Actual free-flow speeds: Light vehicle (4*5*6) (7)	Actual free-flow speeds (km/h): Other vehicle types MHV	Actual free-flow speeds (km/h): LB	Actual free-flow speeds (km/h): LT	User FFV input:
A	1	88.0	70.0	90.0	65.0	0.0		88.0		88.00	70.00	90.00	65.00	None!
	2	88.0	70.0	90.0	65.0	0.0		88.0		88.00	70.00	90.00	65.00	None!
B	1	88.0	70.0	90.0	65.0	0.0		88.0		88.00	70.00	90.00	65.00	None!
	2	88.0	70.0	90.0	65.0	0.0		88.0		88.00	70.00	90.00	65.00	None!

Comments: Table B-1:1 used to get base free flow speed!

CAPACITY, C = Co x FCw x FCsp

Case	Direction	Base Capacity: Co pcu/h (11)	Adjustment factors for capacity: Carriageway width Table C-1:1 FCw (12)	Adjustment factors for capacity: Directional split Table C-2:1 FCsp (13)	Actual capacity C (pcu/h) (11)*(12)*(13) (15)
A	1	4600	1.000	1.000	4600
	2	4600	1.000	1.000	4600
B	1	4600	1.000	1.000	4600
	2	4600	1.000	1.000	4600

ACTUAL SPEED and TRAVEL TIME for light vehicles

DEGREE OF BUNCHING

Case	Direction	Traffic flow, Q pcu/h (21)	Degree of saturation DS=Q/C (21)/(15) (22)	Actual speed, Vlv Fig D2:1/2 km/h (23)	Road segment length L, km (24)	Travel time, TT (24)/(23) sec (25)	ACTUAL SPEEDS other vehicles (km/h) MHV	LB	LT	Degree of bunching DB Fig D3:1 (31)
A	1	756	0.164	83.61	13.000	559.68	66.51	85.51	61.76	
	2	627	0.136	84.39	13.000	554.54	67.13	86.31	62.33	
B	1	756	0.164	83.61	13.000	559.68	66.51	85.51	61.76	
	2	627	0.136	84.39	13.000	554.54	67.13	86.31	62.33	

Space for user remark: Only 2/2UD roads

Program version 1.10F | Date of run: 190716/20:55

Sumber : Hasil Analisis Software KAJI (2019)