

# KURSUS PENGENALAN PENILAIAN KESAN TRAFIK 16-18 OKTOBER 2019



***ANALISA DATA TRAFIK AWALAN  
(BANCIAN TRAFIK)***

# 1. PENGUMPULAN DATA



# PENGUMPULAN DATA

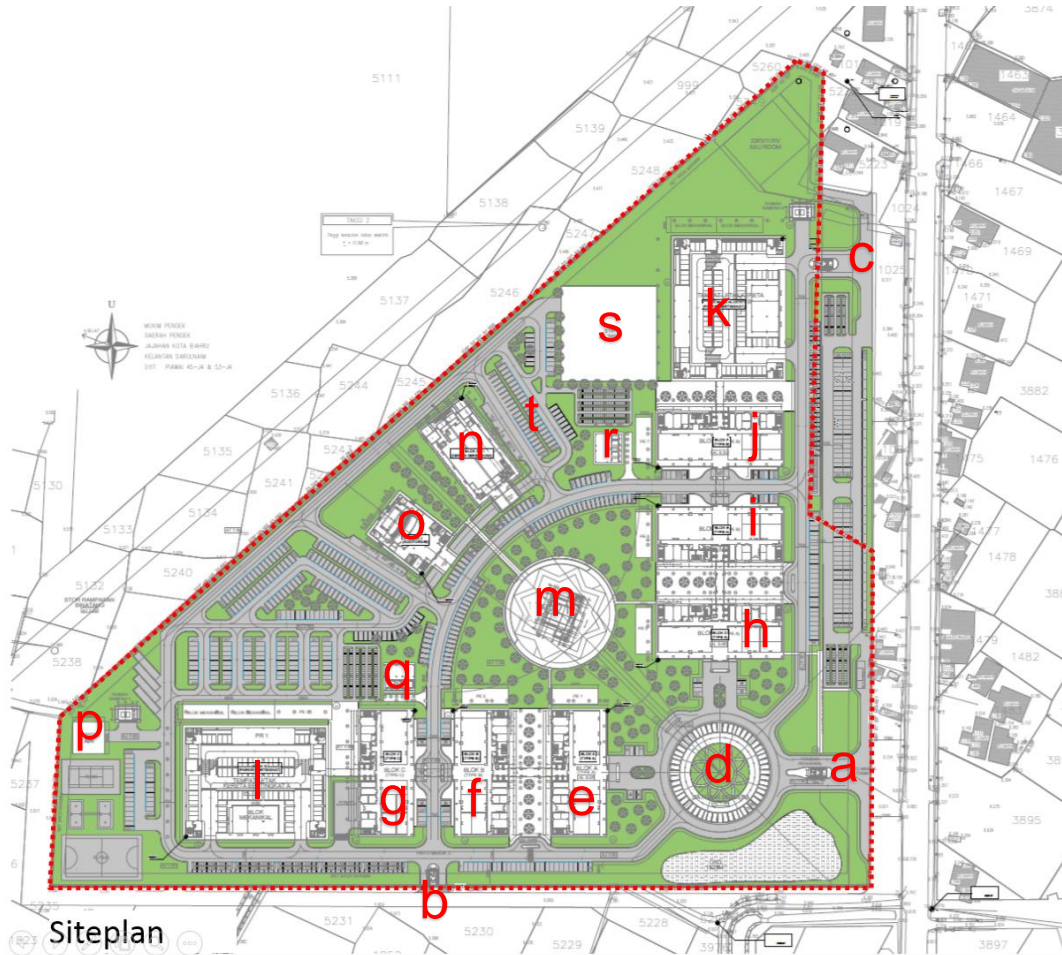
---

## 1. KAJIAN AWALAN (DESK STUDY)

- Mendapatkan brif projek (Schedule Of Accomodation (SOA) dan lokasi projek) dan pelan susunatur daripada HOPT/HODT
- Menentukan lokasi persimpangan yang terlibat melalui *Google Earth/Maps* sebelum mengadakan lawatan tapak
- Merujuk RTVM sekiranya terdapat stesen bancian BLK yang berhampiran – waktu puncak, *LOS screenline*, *growth rate*
- Jika TIA, semak keperluan kajian TIA berdasarkan SOA yang diberi (*Trigger Level*, *Trip Generation Manual*)



# CONTOH PELAN SUSUNATUR



## Konsep pembangunan terkini

- a. Pintu masuk utama
- b. Pintu masuk 2
- c. Pintu masuk 3
- d. Dataran
- e. Blok A
- f. Blok B
- g. Blok C
- h. Blok D
- i. Blok E
- j. Blok F
- k. Tempat letak kereta 4 tingkat (kakitangan)
- l. Tempat letak kereta 4 tingkat (kakitangan)
- m. Surau (200 pax)
- n. Dewan serbaguna (1000 pax)
- o. Auditorium (100 pax)
- p. Tangki air
- q. Cafeteria (2 nos)
- r. STP
- s. TNB 33KV
- t. Hentian bas / teksi



# CONTOH LOKASI KAJIAN



# PENGUMPULAN DATA

---

## 2. DATA TRAFIK DI PERSIMPANGAN (BANCIAN TRAFIK)

- Bancian trafik dilaksanakan **setiap 15 minit** bagi **semua arah pergerakan** (termasuk *illegal U-turn*, jika ada) pada **waktu puncak**
- Data diperlukan dalam bentuk
  - *Softcopy (Ms.Excel)*
  - *Hardcopy (raw data)*



# BANCIAN TRAFIK



# PENGUMPULAN DATA

---

## 3. DATA GEOMETRIK (UKURAN DI TAPAK)

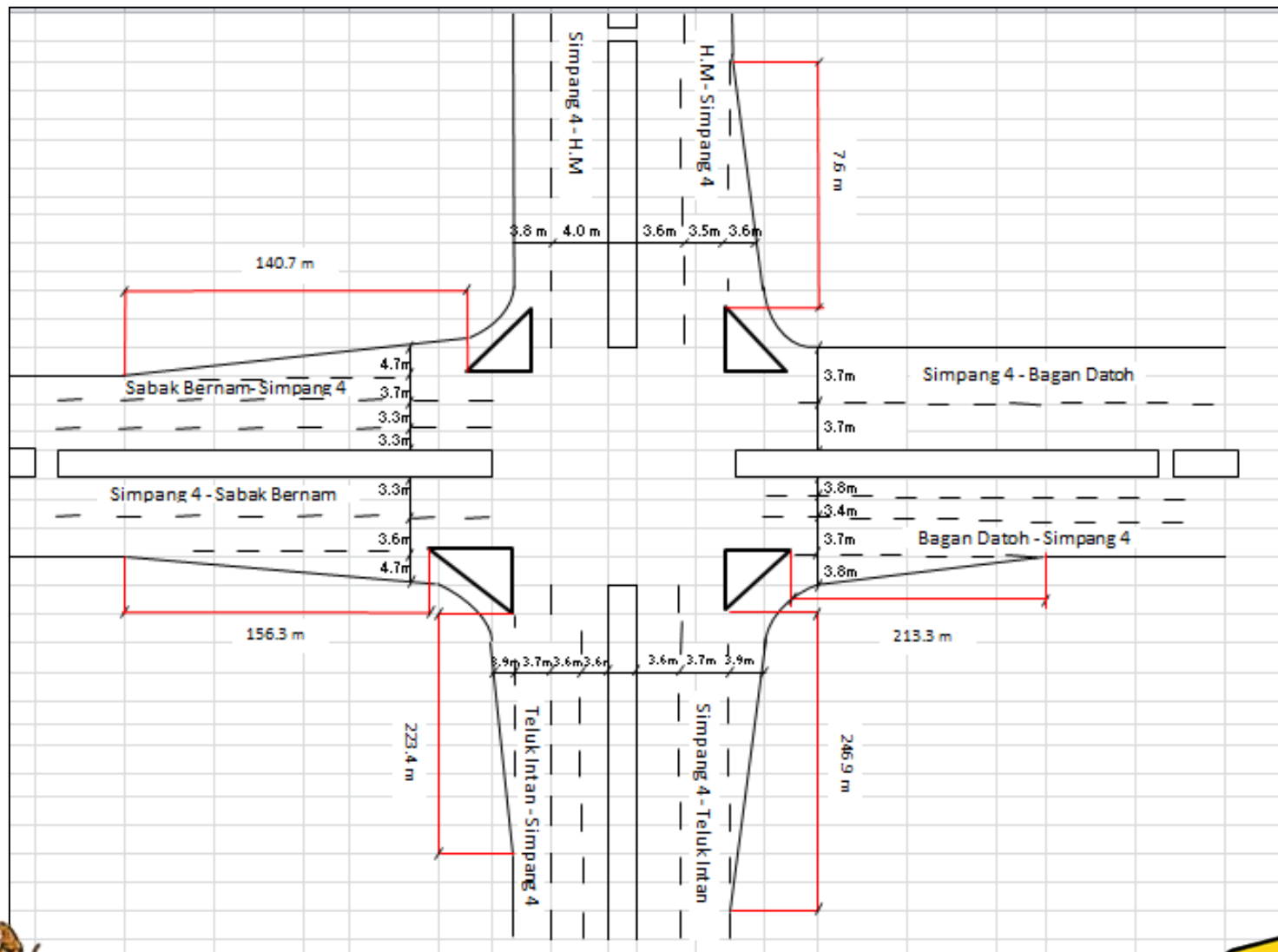
- Data geometrik setiap persimpangan dalam bentuk pelan lakaran
- Menunjukkan ukuran setiap lebar lorong dan panjang *acceleration lane*, *deceleration lane*, *storage lane*, *radius (roundabout)* dan *median* (jika ada)



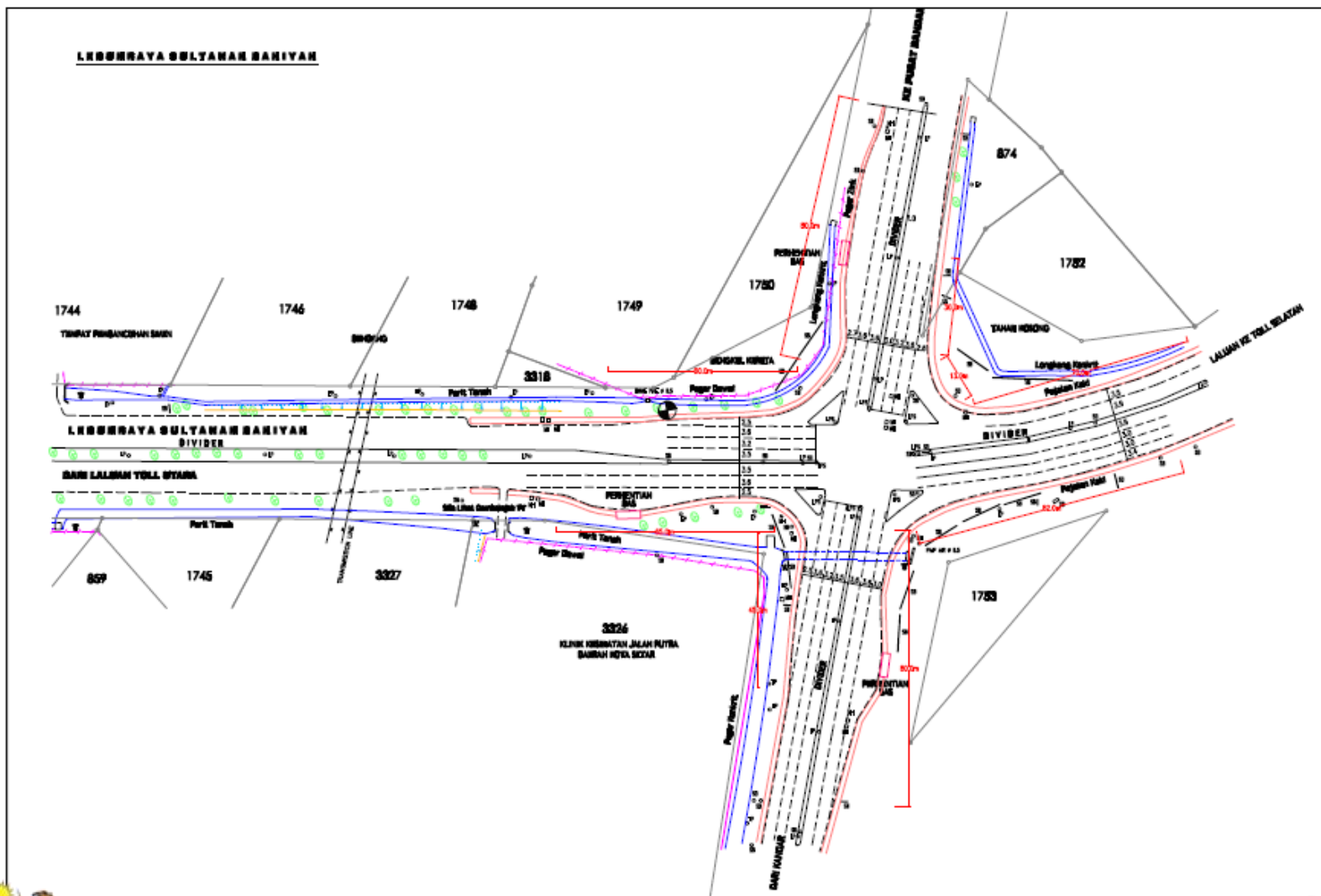
# PENGUKURAN DI TAPAK



# CONTOH DATA GEOMETRIK (LAKARAN)



# CONTOH DATA GEOMETRIK (AUTOCAD)



# PENGUMPULAN DATA

---

## 4. *PHASING TIME*

- *Phasing time* bagi setiap lampu isyarat persimpangan yang terlibat (jika ada)

## 5. *QUEUE LENGTH*

- Mengambil jarak *queue* terpanjang pada setiap kaki persimpangan beserta gambar



# BANCIAN TRAFIK



# APA YANG DIPERLUKAN

- Pembanci – bagi setiap arah pergerakan
- Borang banci
- Tally counter



# WAKTU PUNCAK

---

- Waktu puncak pagi (7.00 pagi – 10.00 pagi)
- Waktu puncak petang (4.00 ptg – 7.00 ptg)
- Pemilihan waktu puncak bergantung kepada lokasi kajian
- RTVM sebagai panduan (jika terdapat stesen banci berhampiran)



# 2. PEMROSESAN DATA



# PEMROSESAN DATA

---

- Data trafik yang diperolehi dari bancian trafik perlu diproses sebelum digunakan untuk analisis selanjutnya (menggunakan perisian SIDRA)
- Data perlu ditukarkan kepada unit kenderaan penumpang (*passenger car unit, pcu*) dan *pcu/hr*



# ***PASSENGER CAR UNIT (PCU)***

---

## ***CONVERSION FACTOR – REAM GL 10-2011***

**Table A3.3.7: PCU Conversion Factors**

Type of Vehicle	Equivalent Value in pcu			
	Rural Standard <sup>1)</sup>	Urban Standard <sup>1)</sup>	Round-About Design <sup>1)</sup>	Traffic Signal Design <sup>2)</sup>
Passenger Cars	1.00	1.00	1.00	1.00
Motor Cycles	1.00	0.75	0.75	0.22
Light Vans	2.00	2.00	2.00	1.00
Medium Lorries	2.50	2.50	2.80	1.19
Heavy Lorries	3.00	3.00	2.80	2.27
Buses	3.00	3.00	2.80	2.08

\*\*Sumber Rujukan: REAM GL 10-2011 TRAFFIC IMPACT ASSESSMENT (Outdated)



# ***PASSENGER CAR UNIT (PCU)***

## ***CONVERSION FACTOR – ATJ 38/2018***

Type of Vehicle	Equivalent Value in pcu			
	Two Lane Highways <sup>(1)</sup>	Multilane Highways <sup>(1)</sup>	Expressways <sup>(1)</sup>	Traffic Signal Design <sup>(2)</sup>
Cars/Small Vans/Utilities	1.00	1.00	1.00	1.00
Lorries (with 2 axles)/Large Vans	1.44	1.58	1.47	1.19
Large lorry, trailers, heavy vehicles with 3 axles and more	1.83	1.76	1.95	2.27
Buses	1.93	1.65	1.66	2.08
Motorcycles	0.96	0.84	0.63	0.22

**Table 4:** PCU Conversion Factors

\*\*Sumber Rujukan: Arahan Teknik Jalan 38/2018: GUIDELINES FOR TRAFFIC IMPACT ASSESSMENT (Latest) – Rujuk SAKPKR BIL 22/2019 bertarikh 14 Ogos 2019



# CONTOH 1

## COMPUTE PCU FOR A TRAFFIC SIGNAL JUNCTION WITH THE FOLLOWING TRAFFIC VOLUME

Passenger cars: 250

Motorcycles: 60

Heavy Lorries: 5

Medium lorries: 20

Buses: 2

Light vans: 10

TYPES OF VEHICLES	TRAFFIC VOLUME	PCU CONVERSION FACTOR	PASSENGER CAR UNIT
PASSENGER CARS			
LIGHT VANS/UTILITIES			
MEDIUM LORRIES			
HEAVY LORRIES			
BUSES			
MOTORCYCLES			



# JAWAPAN

## A TRAFFIC SIGNAL JUNCTION

Passenger cars: 250

Heavy Lorries: 5

Buses: 2

Motorcycles: 60

Medium lorries: 20

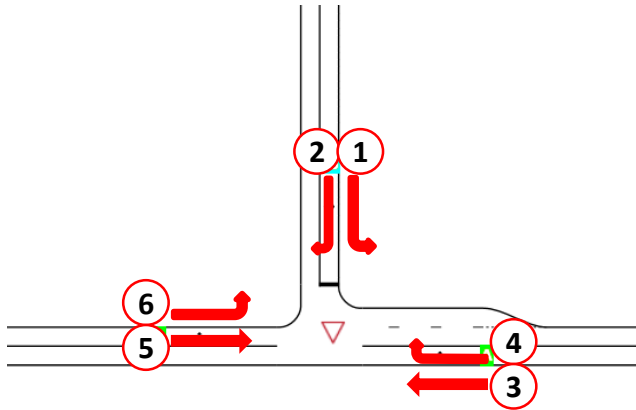
Light vans: 10

TYPES OF VEHICLES	TRAFFIC COUNT	PCU CONVERSION FACTOR	PASSENGER CAR UNIT
PASSENGER CARS	250	1.00	250
LIGHT VANS/UTILITIES	10	1.00	10
MEDIUM LORRIES	20	1.19	24
HEAVY LORRIES	5	2.27	11
BUSES	2	2.08	4
MOTORCYCLES	60	0.22	13

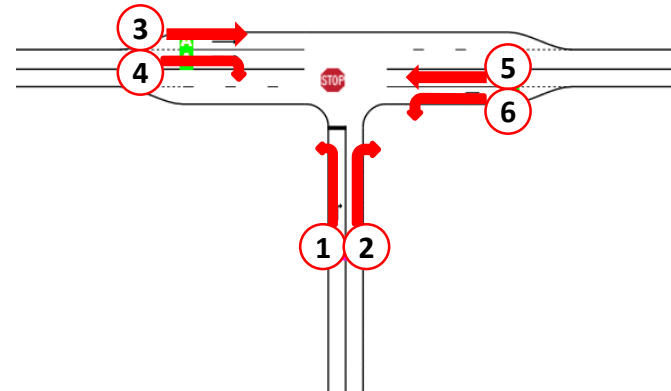


# CONTOH 2

**KENALPASTI PCU/HR BAGI KAJIAN YANG MELIBATKAN DUA PERSIMPANGAN  
SEPERTI DI BAWAH**



**JUNCTION 1**



**JUNCTION 2**



# LANGKAH 1 – KIRA PCU

## JUNCTION 1

ARAH 1										ARAH 2								ARAH 3								ARAH 4								ARAH 5								ARAH 6								TOTAL PCU/HR
TIME	CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR		CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR		CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR		CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR		CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR						
6:00	6:15	2	0	0	0	0	3	3	41	3	2	0	0	0	2	5	20	11	3	3	2	1	8	26	167	0	0	0	0	0	3	1	22	10	0	1	0	0	9	13	128	2	0	0	0	0	4	3	18	396
6:15	6:30	3	0	0	0	0	3	4	94	3	1	0	0	0	2	4	21	16	0	0	0	0	0	16	296	1	0	0	0	0	1	1	36	18	1	0	2	0	9	26	209	2	1	0	0	0	4	4	26	681
6:30	6:45	7	3	0	0	0	7	12	167	3	1	0	0	0	3	5	24	23	6	2	0	1	19	38	486	5	0	0	0	0	4	6	56	32	1	1	0	0	30	41	351	1	1	0	0	0	11	4	41	1125
6:45	7:00	13	2	1	0	0	32	23	186	5	0	0	0	0	2	5	30	53	9	7	2	1	46	87	613	9	3	0	0	0	10	14	65	30	3	2	2	2	21	49	421	4	0	0	0	0	13	7	48	1363
7:00	7:15	33	5	0	0	0	80	56	186	3	2	0	0	0	7	7	40	120	5	5	0	2	91	155	647	10	2	0	0	0	12	15	58	70	3	3	1	0	68	94	490	8	0	0	0	0	11	10	52	1474
7:15	7:30	54	3	0	1	0	80	77	161	6	0	0	0	0	4	7	45	172	6	5	0	2	82	206	582	13	3	2	0	0	11	21	53	125	8	10	2	0	85	168	502	10	5	1	0	0	15	19	56	1400
7:30	7:45	14	2	2	2	0	32	30	121	10	0	0	0	0	6	11	50	133	2	2	3	1	83	165	422	12	2	0	0	0	7	16	41	80	0	7	0	2	83	111	448	6	1	0	0	0	20	11	41	1124
7:45	8:00	19	1	1	0	0	10	23	119	9	1	2	0	0	15	16	47	97	0	5	2	2	45	122	368	6	0	0	0	0	4	7	38	100	1	0	0	1	65	117	463	5	1	1	0	0	17	11	36	1071
8:00	8:15	22	3	1	0	0	21	31	110	5	5	0	0	0	5	11	38	63	5	9	1	0	42	90	372	3	3	2	0	0	8	10	40	76	8	5	2	1	42	106	463	9	1	1	0	0	15	14	36	1058
8:15	8:30	26	5	1	0	0	20	37		4	4	2	0	0	7	12		37	1	0	0	1	27	46		6	1	0	0	0	8	9	70	12	15	2	0	45	114		1	0	0	0	16	5				
8:30	8:45	18	2	1	0	0	30	28		2	2	1	1	0	5	9		70	9	5	6	2	34	110		8	0	2	0	0	7	12	78	15	5	2	4	62	125		5	0	0	0	0	7	7			
8:45	9:00	9	1	0	0	0	20	14		2	2	1	0	0	4	6		94	5	6	4	1	36	125		3	2	0	1	0	8	9	62	10	15	5	2	55	117		8	0	0	0	0	12	11			



# LANGKAH 2 – KIRA PCU/HR

## JUNCTION 1

ARAH 1										ARAH 2								ARAH 3								ARAH 4								ARAH 5								ARAH 6								TOTAL PCU/HR			
TIME	CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR		CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR		CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR		CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR		CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR		CAR	VAN	M/L	H/L		BUS	M/C	PCU
6:00	6:15	2	0	0	0	0	3	3	41	3	2	0	0	0	2	5	20	11	3	3	2	1	8	26	167	0	0	0	0	0	3	1	22	10	0	1	0	0	9	13	128	2	0	0	0	0	4	3	18	396			
6:15	6:30	3	0	0	0	0	3	4	94	3	1	0	0	0	2	4	21	16	0	0	0	0	0	16	296	1	0	0	0	0	1	1	36	18	1	0	2	0	9	26	209	2	1	0	0	0	4	4	26	681			
6:30	6:45	7	3	0	0	0	7	12	167	3	1	0	0	0	3	5	24	23	6	2	0	1	19	38	486	5	0	0	0	0	4	6	56	32	1	1	0	0	30	41	351	1	1	0	0	0	11	4	41	1125			
6:45	7:00	13	2	1	0	0	32	23	186	5	0	0	0	0	2	5	30	53	9	7	2	1	46	87	613	9	3	0	0	0	10	14	65	30	3	2	2	2	21	49	421	4	0	0	0	0	13	7	48	1363			
7:00	7:15	33	5	0	0	0	80	56	186	3	2	0	0	0	7	7	40	120	5	5	0	2	91	155	647	10	2	0	0	0	12	15	58	70	3	3	1	0	68	94	490	8	0	0	0	0	11	10	52	1474			
7:15	7:30	54	3	0	1	0	80	77	161	6	0	0	0	0	4	7	45	172	6	5	0	2	82	206	582	13	3	2	0	0	11	21	53	125	8	10	2	0	85	168	502	10	5	1	0	0	15	19	56	1400			
7:30	7:45	14	2	2	2	0	32	30	121	10	0	0	0	0	6	11	50	133	2	2	3	1	83	165	422	12	2	0	0	0	7	16	41	80	0	7	0	2	83	111	448	6	1	0	0	0	20	11	41	1124			
7:45	8:00	19	1	1	0	0	10	23	119	9	1	2	0	0	15	16	47	97	0	5	2	2	45	122	368	6	0	0	0	0	4	7	38	100	1	0	0	1	65	117	463	5	1	1	0	0	17	11	36	1071			
8:00	8:15	22	3	1	0	0	21	31	110	5	5	0	0	0	5	11	38	63	5	9	1	0	42	90	372	3	3	2	0	0	8	10	40	76	8	5	2	1	42	106	463	9	1	1	0	0	15	14	36	1058			
8:15	8:30	26	5	1	0	0	20	37		4	4	2	0	0	7	12		37	1	0	0	1	27	46		6	1	0	0	0	8	9	70	12	15	2	0	45	114		1	0	0	0	16	5							
8:30	8:45	18	2	1	0	0	30	28		2	2	1	1	0	5	9		70	9	5	6	2	34	110		8	0	2	0	0	7	12	78	15	5	2	4	62	125		5	0	0	0	0	7	7						
8:45	9:00	9	1	0	0	0	20	14		2	2	1	0	0	4	6		94	5	6	4	1	36	125		3	2	0	1	0	8	9	62	10	15	5	2	55	117		8	0	0	0	0	12	11						



# BAGAIMANA MENGIRA PCU/HR

ARAH 1

TIME		CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR
6:00	6:15	2	0	0	0	0	3	3	41
6:15	6:30	3	0	0	0	0	3	4	94
6:30	6:45	7	3	0	0	0	7	12	167
6:45	7:00	13	2	1	0	0	32	23	186
7:00	7:15	33	5	0	0	0	80	56	186
7:15	7:30	54	3	0	1	0	80	77	161
7:30	7:45	14	2	2	2	0	32	30	121
7:45	8:00	19	1	1	0	0	10	23	119
8:00	8:15	22	3	1	0	0	21	31	110
8:15	8:30	26	5	1	0	0	20	37	
8:30	8:45	18	2	1	0	0	30	28	
8:45	9:00	9	1	0	0	0	20	14	

**JUMLAHKAN PCU BAGI SETIAP JAM**



# LANGKAH 3 – KIRA TOTAL PCU/HR

## JUNCTION 1

ARAH 1										ARAH 2						ARAH 3						ARAH 4						ARAH 5						ARAH 6						TOTAL PCU/HR										
TIME	CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR		CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR		CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR		CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR		CAR	VAN	M/L		H/L	BUS	M/C	PCU	PCU/HR					
6:00	6:15	2	0	0	0	0	3	3	41	3	2	0	0	0	2	5	20	11	3	3	2	1	8	26	167	0	0	0	0	0	3	22	10	0	1	0	0	9	13	128	2	0	0	0	0	4	3	18	396	
6:15	6:30	3	0	0	0	0	3	4	94	3	1	0	0	0	2	4	21	16	0	0	0	0	0	16	296	1	0	0	0	0	1	1	36	18	1	0	2	0	9	26	209	2	1	0	0	0	4	4	26	681
6:30	6:45	7	3	0	0	0	7	12	167	3	1	0	0	0	3	5	24	23	6	2	0	1	19	38	486	5	0	0	0	0	4	6	56	32	1	1	0	0	30	41	351	1	1	0	0	0	11	4	41	1125
6:45	7:00	13	2	1	0	0	32	23	186	5	0	0	0	0	2	5	30	53	9	7	2	1	46	87	613	9	3	0	0	0	10	14	65	30	3	2	2	2	21	49	421	4	0	0	0	0	13	7	48	1363
7:00	7:15	33	5	0	0	0	80	56	186	3	2	0	0	0	7	7	40	120	5	5	0	2	91	155	647	10	2	0	0	0	12	15	58	70	3	3	1	0	68	94	490	8	0	0	0	0	11	10	52	1474
7:15	7:30	54	3	0	1	0	80	77	161	6	0	0	0	0	4	7	45	172	6	5	0	2	82	206	582	13	3	2	0	0	11	21	53	125	8	10	2	0	85	168	502	10	5	1	0	0	15	19	56	1400
7:30	7:45	14	2	2	2	0	32	30	121	10	0	0	0	0	6	11	50	133	2	2	3	1	83	165	422	12	2	0	0	0	7	16	41	80	0	7	0	2	83	111	448	6	1	0	0	0	20	11	41	1124
7:45	8:00	19	1	1	0	0	10	23	119	9	1	2	0	0	15	16	47	97	0	5	2	2	45	122	368	6	0	0	0	0	4	7	38	100	1	0	0	1	65	117	463	5	1	1	0	0	17	11	36	1071
8:00	8:15	22	3	1	0	0	21	31	110	5	5	0	0	0	5	11	38	63	5	9	1	0	42	90	372	3	3	2	0	0	8	10	40	76	8	5	2	1	42	106	463	9	1	1	0	0	15	14	36	1058
8:15	8:30	26	5	1	0	0	20	37		4	4	2	0	0	7	12		37	1	0	0	1	27	46		6	1	0	0	0	8	9	70	12	15	2	0	45	114		1	0	0	0	16	5				
8:30	8:45	18	2	1	0	0	30	28		2	2	1	1	0	5	9		70	9	5	6	2	34	110		8	0	2	0	0	7	12	78	15	5	2	4	62	125		5	0	0	0	0	7	7			
8:45	9:00	9	1	0	0	0	20	14		2	2	1	0	0	4	6		94	5	6	4	1	36	125		3	2	0	1	0	8	9	62	10	15	5	2	55	117		8	0	0	0	0	12	11			



# ULANG LANGKAH 1-3 UNTUK *JUNCTION 2*

## *JUNCTION 2*

TIME	ARAH 1										ARAH 2										ARAH 3										ARAH 4										ARAH 5										ARAH 6										TOTAL PCU/HR
	CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR	CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR	CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR	CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR	CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR	CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR	CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR					
6:00	6:15	1	0	0	0	0	1	1	7	0	1	0	0	0	6	2	26	14	2	2	1	0	7	22	185	0	0	0	0	0	0	0	0	6	9	3	3	2	0	3	21	152	1	1	2	0	0	1	5	29	405										
6:15	6:30	0	0	0	1	0	3	3	18	0	2	0	0	0	1	2	38	20	2	0	4	0	7	33	288	0	0	0	0	0	0	0	29	15	8	3	2	1	5	34	225	2	1	0	0	0	0	3	50	649											
6:30	6:45	1	0	0	0	0	0	1	31	3	0	3	0	1	3	9	41	27	0	1	4	0	10	39	444	0	1	0	0	0	2	1	60	24	0	1	1	2	7	33	330	0	0	3	0	0	0	4	74	980											
6:45	7:00	1	0	0	0	0	6	2	34	9	2	0	0	0	4	12	38	73	0	7	1	0	33	91	563	4	0	0	0	0	2	4	80	40	5	4	3	1	23	64	473	10	0	3	1	0	10	18	92	1279											
7:00	7:15	7	0	0	0	0	23	12	37	12	2	0	0	0	4	15	39	110	1	2	0	1	44	125	622	12	0	0	0	0	50	23	93	66	5	9	3	0	26	94	528	23	0	0	0	0	13	26	90	1409											
7:15	7:30	10	0	0	0	0	27	16	33	3	0	1	0	0	3	5	29	160	5	1	2	1	70	188	626	16	2	0	0	0	60	31	73	109	12	1	3	0	47	139	516	13	2	0	2	0	30	26	76	1353											
7:30	7:45	1	0	0	0	0	11	3	20	4	0	2	0	0	1	7	36	143	3	2	0	0	48	159	562	15	2	0	0	0	18	21	46	146	7	7	0	3	36	175	461	18	1	0	0	0	12	22	62	1186											
7:45	8:00	5	0	0	0	0	4	6	23	9	2	0	0	0	7	13	40	132	5	1	0	0	53	150	514	10	3	0	0	0	22	18	35	94	8	4	2	1	27	119	397	13	0	0	0	0	13	16	49	1057											
8:00	8:15	4	1	2	0	0	3	8	21	3	1	0	0	0	4	5	37	106	10	5	0	0	30	129	455	2	0	0	0	0	6	3	19	61	6	2	2	2	18	82	343	8	2	0	0	0	10	12	39	915											
8:15	8:30	1	0	1	0	0	1	2		8	3	0	0	0	4	12		92	10	5	3	0	46	125		0	0	1	1	0	1	4		56	6	13	1	0	18	84		8	1	0	0	0	13	12													
8:30	8:45	3	2	1	0	0	1	6		10	0	0	0	0	2	10		86	3	5	3	2	21	111		4	1	0	2	0	2	10		61	15	12	5	3	17	112		2	3	2	0	0	8	9													
8:45	9:00	3	0	0	0	0	5	4		9	0	0	0	0	3	10		62	10	5	2	2	21	91		2	0	0	0	0	1	2		42	4	6	2	2	18	66		5	0	0		0	5	6													



# LANGKAH 4 – KIRA JUMLAH PCU/HR KEDUA-DUA JUNCTION

TIME		TOTAL PCU/HR JUNCTION 1	TOTAL PCU/HR JUNCTION 2	OVERALL PCU/HR JUNCTION 1+2
6:00	6:15	396	405	801
6:15	6:30	681	649	1331
6:30	6:45	1125	980	2105
6:45	7:00	1363	1279	2643
7:00	7:15	1474	1409	2883
7:15	7:30	1400	1353	2753
7:30	7:45	1124	1186	2310
7:45	8:00	1071	1057	2128
8:00	8:15	1058	915	1973
8:15	8:30			
8:30	8:45			
8:45	9:00			



# LANGKAH 5 – KENALPASTI *PEAK HOUR*

TIME		TOTAL PCU/HR JUNCTION 1	TOTAL PCU/HR JUNCTION 2	OVERALL PCU/HR JUNCTION 1+2
6:00	6:15	396	405	801
6:15	6:30	681	649	1331
6:30	6:45	1125	980	2105
6:45	7:00	1363	1279	2643
7:00	7:15	1474	1409	2883
7:15	7:30	1400	1353	2753
7:30	7:45	1124	1186	2310
7:45	8:00	1071	1057	2128
8:00	8:15	1058	915	1973
8:15	8:30			
8:30	8:45			
8:45	9:00			

***MAXIMUM TRAFFIC VOLUME = 2883 PCU/HR  
PEAK HOUR: 7.00 AM – 8.00 AM***



# LANGKAH 6 – DAPATKAN PCU/HR PADA WAKTU PUNCAK 7.00 AM – 8.00 AM

## JUNCTION 1

ARAH 1										ARAH 2						ARAH 3						ARAH 4						ARAH 5						ARAH 6						TOTAL PCU/HR														
TIME	CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR		CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR		CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR		CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR		CAR	VAN	M/L		H/L	BUS	M/C	PCU	PCU/HR									
6:00	6:15	2	0	0	0	0	3	3	41	3	2	0	0	0	2	5	20		11	3	3	2	1	8	26	167		0	0	0	0	0	3	1	22		10	0	1	0	0	9	13	128		2	0	0	0	0	4	3	18	396
6:15	6:30	3	0	0	0	0	3	4	94	3	1	0	0	0	2	4	21		16	0	0	0	0	0	16	296		1	0	0	0	0	1	1	36		18	1	0	2	0	9	26	209		2	1	0	0	0	4	4	26	681
6:30	6:45	7	3	0	0	0	7	12	167	3	1	0	0	0	3	5	24		23	6	2	0	1	19	38	486		5	0	0	0	0	4	6	56		32	1	1	0	0	30	41	351		1	1	0	0	0	11	4	41	1125
6:45	7:00	13	2	1	0	0	32	23	186	5	0	0	0	0	2	5	30		53	9	7	2	1	46	87	613		9	3	0	0	0	10	14	65		30	3	2	2	2	21	49	421		4	0	0	0	0	13	7	48	1363
7:00	7:15	33	5	0	0	0	80	56	186	3	2	0	0	0	7	7	40		120	5	5	0	2	91	155	647		10	2	0	0	0	12	15	58		70	3	3	1	0	68	94	490		8	0	0	0	0	11	10	52	1474
7:15	7:30	54	3	0	1	0	80	77	161	6	0	0	0	0	4	7	45		172	6	5	0	2	82	206	582		13	3	2	0	0	11	21	53		125	8	10	2	0	85	168	502		10	5	1	0	0	15	19	56	1400
7:30	7:45	14	2	2	2	0	32	30	121	10	0	0	0	0	6	11	50		133	2	2	3	1	83	165	422		12	2	0	0	0	7	16	41		80	0	7	0	2	83	111	448		6	1	0	0	0	20	11	41	1124
7:45	8:00	19	1	1	0	0	10	23	119	9	1	2	0	0	15	16	47		97	0	5	2	2	45	122	368		6	0	0	0	0	4	7	38		100	1	0	0	1	65	117	463		5	1	1	0	0	17	11	36	1071
8:00	8:15	22	3	1	0	0	21	31	110	5	5	0	0	0	5	11	38		63	5	9	1	0	42	90	372		3	3	2	0	0	8	10	40		76	8	5	2	1	42	106	463		9	1	1	0	0	15	14	36	1058
8:15	8:30	26	5	1	0	0	20	37		4	4	2	0	0	7	12			37	1	0	0	1	27	46			6	1	0	0	0	8	9			70	12	15	2	0	45	114			1	0	0	0	16	5			
8:30	8:45	18	2	1	0	0	30	28		2	2	1	1	0	5	9			70	9	5	6	2	34	110			8	0	2	0	0	7	12			78	15	5	2	4	62	125			5	0	0	0	0	7	7		
8:45	9:00	9	1	0	0	0	20	14		2	2	1	0	0	4	6			94	5	6	4	1	36	125			3	2	0	1	0	8	9			62	10	15	5	2	55	117			8	0	0	0	0	12	11		



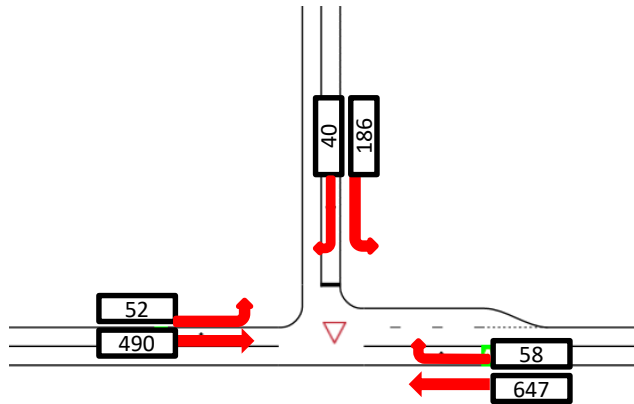
# LANGKAH 6 – DAPATKAN PCU/HR PADA WAKTU PUNCAK 7.00 AM – 8.00 AM

## JUNCTION 2

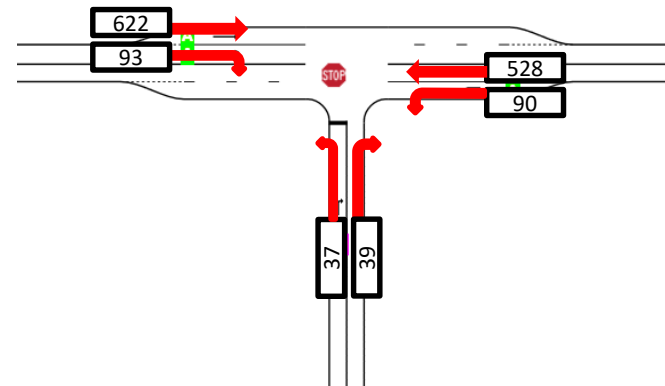
TIME	ARAH 1									ARAH 2									ARAH 3									ARAH 4									ARAH 5									ARAH 6									TOTAL PCU/HR
	CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR		CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR		CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR		CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR		CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR		CAR	VAN	M/L	H/L	BUS	M/C	PCU	PCU/HR		
6:00	6:15	1	0	0	0	0	1	1	7	0	1	0	0	0	6	2	26	14	2	2	1	0	7	22	185	0	0	0	0	0	0	0	6	9	3	3	2	0	3	21	152	1	1	2	0	0	1	5	29	405					
6:15	6:30	0	0	0	1	0	3	3	18	0	2	0	0	0	1	2	38	20	2	0	4	0	7	33	288	0	0	0	0	0	0	0	29	15	8	3	2	1	5	34	225	2	1	0	0	0	0	3	50	649					
6:30	6:45	1	0	0	0	0	0	1	31	3	0	3	0	1	3	9	41	27	0	1	4	0	10	39	444	0	1	0	0	0	2	1	60	24	0	1	1	2	7	33	330	0	0	3	0	0	0	4	74	980					
6:45	7:00	1	0	0	0	0	6	2	34	9	2	0	0	0	4	12	38	73	0	7	1	0	33	91	563	4	0	0	0	0	2	4	80	40	5	4	3	1	23	64	473	10	0	3	1	0	10	18	92	1279					
7:00	7:15	7	0	0	0	0	23	12	37	12	2	0	0	0	4	15	39	110	1	2	0	1	44	125	622	12	0	0	0	0	50	23	93	66	5	9	3	0	26	94	528	23	0	0	0	0	13	26	90	1409					
7:15	7:30	10	0	0	0	0	27	16	33	3	0	1	0	0	3	5	29	160	5	1	2	1	70	188	626	16	2	0	0	0	60	31	73	109	12	1	3	0	47	139	516	13	2	0	2	0	30	26	76	1353					
7:30	7:45	1	0	0	0	0	11	3	20	4	0	2	0	0	1	7	36	143	3	2	0	0	48	159	562	15	2	0	0	0	18	21	46	146	7	7	0	3	36	175	461	18	1	0	0	0	12	22	62	1186					
7:45	8:00	5	0	0	0	0	4	6	23	9	2	0	0	0	7	13	40	132	5	1	0	0	53	150	514	10	3	0	0	0	22	18	35	94	8	4	2	1	27	119	397	13	0	0	0	0	13	16	49	1057					
8:00	8:15	4	1	2	0	0	3	8	21	3	1	0	0	0	4	5	37	106	10	5	0	0	30	129	455	2	0	0	0	0	6	3	19	61	6	2	2	2	18	82	343	8	2	0	0	0	10	12	39	915					
8:15	8:30	1	0	1	0	0	1	2		8	3	0	0	0	4	12		92	10	5	3	0	46	125		0	0	1	1	0	1	4	56	6	13	1	0	18	84		8	1	0	0	0	13	12								
8:30	8:45	3	2	1	0	0	1	6		10	0	0	0	0	2	10		86	3	5	3	2	21	111		4	1	0	2	0	2	10	61	15	12	5	3	17	112		2	3	2	0	0	8	9								
8:45	9:00	3	0	0	0	0	5	4		9	0	0	0	0	3	10		62	10	5	2	2	21	91		2	0	0	0	0	1	2	42	4	6	2	2	18	66		5	0	0		0	5	6								



# DATA *PCU/HR* SEDIA UNTUK ANALISIS SETERUSNYA MENGUNAKAN *SOFTWARE SIDRA*



*JUNCTION 1*



*JUNCTION 2*





# TERIMA KASIH

