



Ministry of Works Malaysia
Highway Planning Division

ROAD TRAFFIC VOLUME MALAYSIA (RTVM) 2019



ROAD TRAFFIC VOLUME MALAYSIA
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LEMBAGA LEBUHRAYA MALAYSIA ROAD MILEAGE VEHICLE REGISTRATION APPENDICES



FOREWORD

ASSALAMUALAIKUM WBT

The Ministry of Works has been entrusted with the responsibility to provide a road network system which is safe, reliable, and comfortable. To this end, it is important that the Ministry collects traffic data on its roads to assist planners, developers, and investors to make business decisions. Hence, this Road Traffic Volume Malaysia (RTVM) 2019 is produced as a reference to guide them.

This RTVM provides traffic data at various locations on Federal and State roads throughout Malaysia. This is also the first time that data from all census stations is gathered using an automated system, rather than using the manual counting. Thermal cameras are used to determine the volume, vehicles classification and speed of the vehicles. Data analytics are also used to carry out the required analysis and subsequent reports.

I would like to congratulate the Highway Planning Division in being innovative in using automation in the data gathering and analysis process, and also for successfully producing the RTVM for the year 2019. It is my hope that in future more technology and automation shall be used in carrying out our work.

DATO' DR. SYED OMAR SHARIFUDDIN BIN SYED IKHSAN
Secretary General
MINISTRY OF WORKS MALAYSIA
November 2019

PREFACE

ASSALAMUALAIKUM WBT

It gives me great pleasure to present the 2019 edition of the Road Traffic Volume Malaysia (RTVM). I would like to thank the team behind the production of this volume, without whose dedication and sacrifice, this work would never come to fruition.

There are a total of 534 census stations spread throughout the country on both the Federal and State roads. This is the first time that automation method is used to collect and analyse data from all census stations. With the sheer amount of data available, we are able to analyse them through the use of data analytics. With the experience gained, I am confident that more technology and more automation can be used in carrying out our work.

I would like to thank the Public Works Department, the Malaysia Highway Authority, the Ministry of Transport, and the various other Ministries, agencies, and those involved which are too numerous to mention, for helping us to produce this RTVM and make it a success.



IR. MAT ROSLY MAT DAUD
Under-Secretary
MINISTRY OF WORKS MALAYSIA
November 2019

NATIONAL TRAFFIC CENSUS

There are a total of 534 traffic census stations in Malaysia and the census data in both directions are recorded hourly for the Federal Roads and the State Roads in Malaysia. The form used for FLIR automated data collection is the same as the previous manual data collection form, as in Appendices.

The National Traffic Census is carried out from June until October, conducted by the appointed contractor and coordinated by Highway Planning Division. The census data is submitted to the Highway Planning Division for further data analyzing and processing.

Types of data collection for national traffic census as shown in Figure 1.

In RTVM, the vehicles are classified into six classes as shown in Figure 2. Figure 2 shows the overall composition according to the vehicle classification on Malaysian roads based on National Traffic Census at the 534 census stations for the year 2019.

The largest percentage of vehicles on the road is 59.3% which is Class 1 (cars and taxis). The ratio of the heavy vehicles which is Class 3, Class 4 and Class 5 to light vehicles which is Class 1, Class 2 and Class 6 is 1:10.

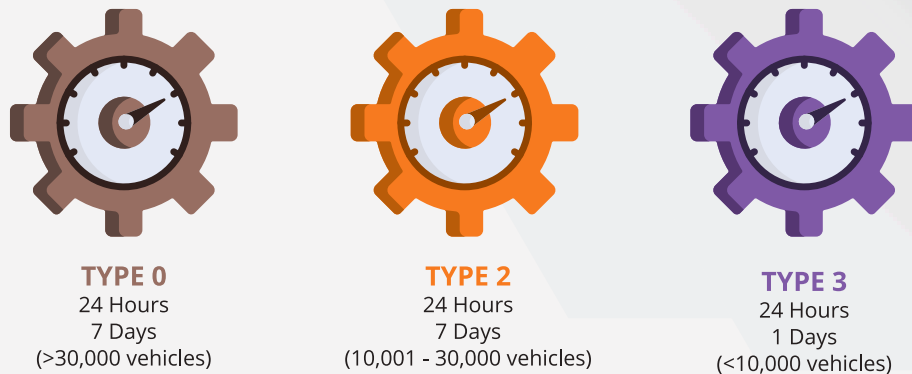


Figure 1: Types of Data Collection for National Traffic Census

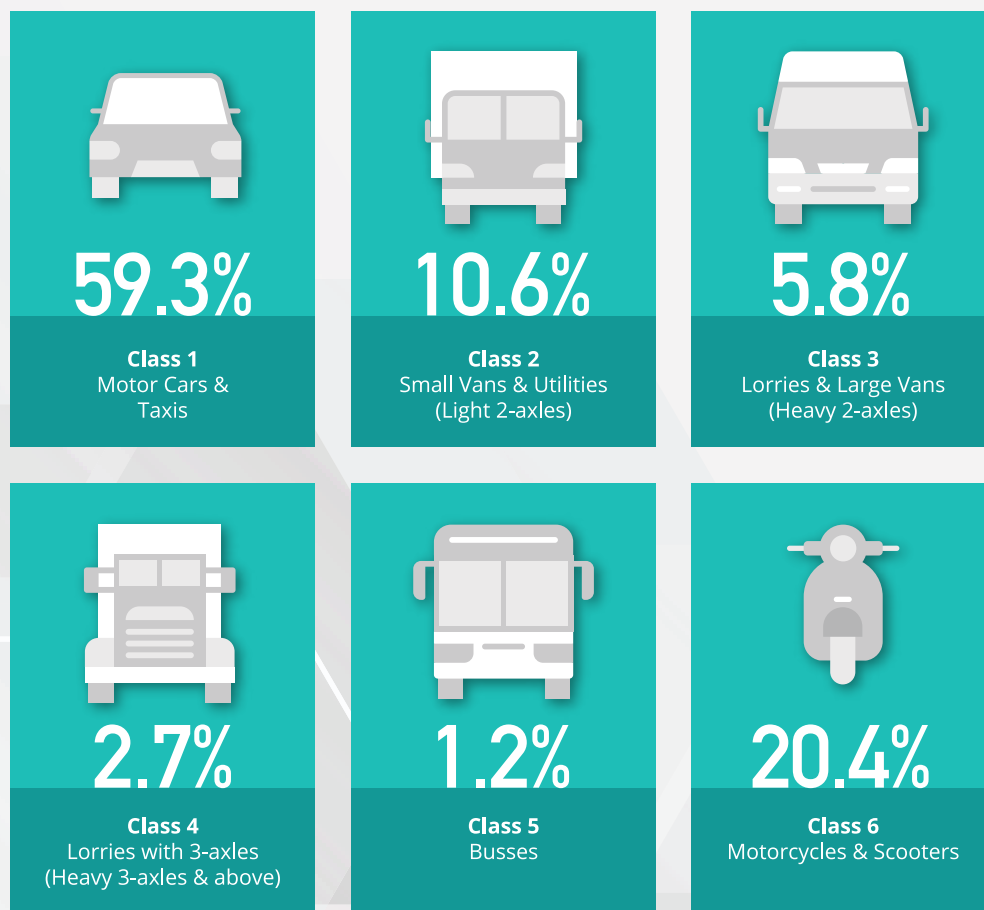


Figure 2: Composition of Vehicle Classification on Malaysia Roads based on National Traffic Census

ROAD TRAFFIC VOLUME MALAYSIA (RTVM)

Road Traffic Volume Malaysia (RTVM) was first published in 1982 in the form of printed copy and the form of digital copy (Compact Disc). Starting from 2014 onwards, RTVM became available in an online version.

RTVM is also available to the public for online version at **RM100.00**.

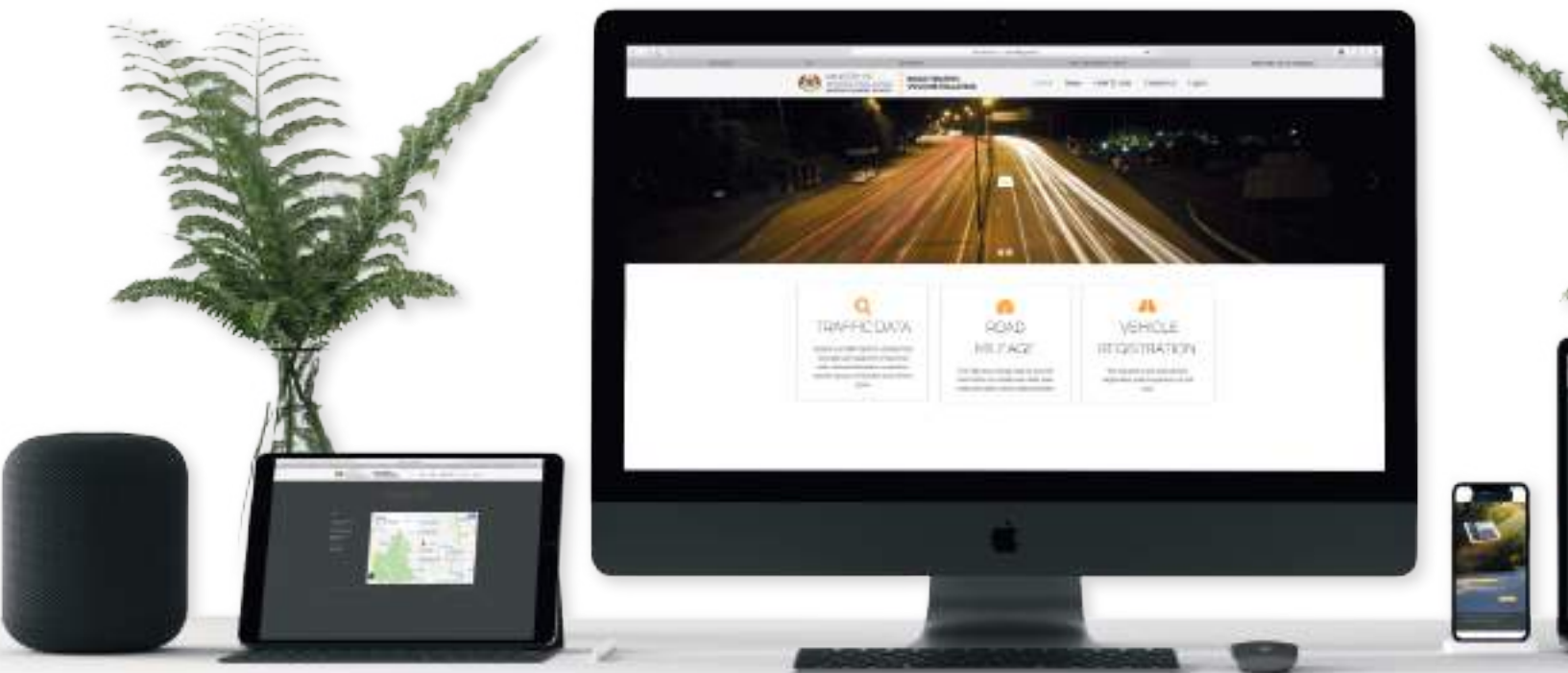
The access code can be purchased at:

ADDRESS Cawangan Pengurusan Perolehan dan Harta,
Ground Floor, Block A, Ministry of Works,
Jalan Sultan Salahuddin, 50580 Kuala Lumpur

TELEPHONE 03-2771 4096

WEBSITE <http://rtvm.kkr.gov.my>

FAX 03-2711 1944



The Contents of RTVM Consists of :

- Traffic Census Stations location description
- Road Traffic Volume information
- Level of Service
- Capacity Year
- Annual Traffic Growth Rates
- Toll Expressway
- Road Mileage
- Vehicle Registration

The Benefit of RTVM are as Follows:

- Provides proper road network planning and roadside development
- Provides detailed study on the traffic flow criteria
- Provides current traffic information for research and study
- Provides comprehensive overview about the current road capacity
- Provides current Level of Service (LOS) of the respective roads.
- Provides information on the traffic growth and projection of traffic

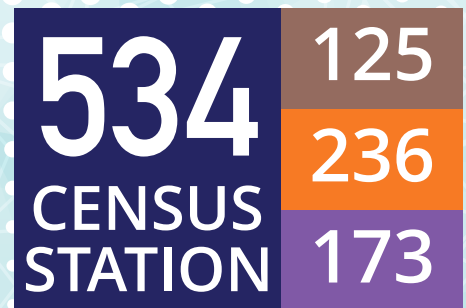
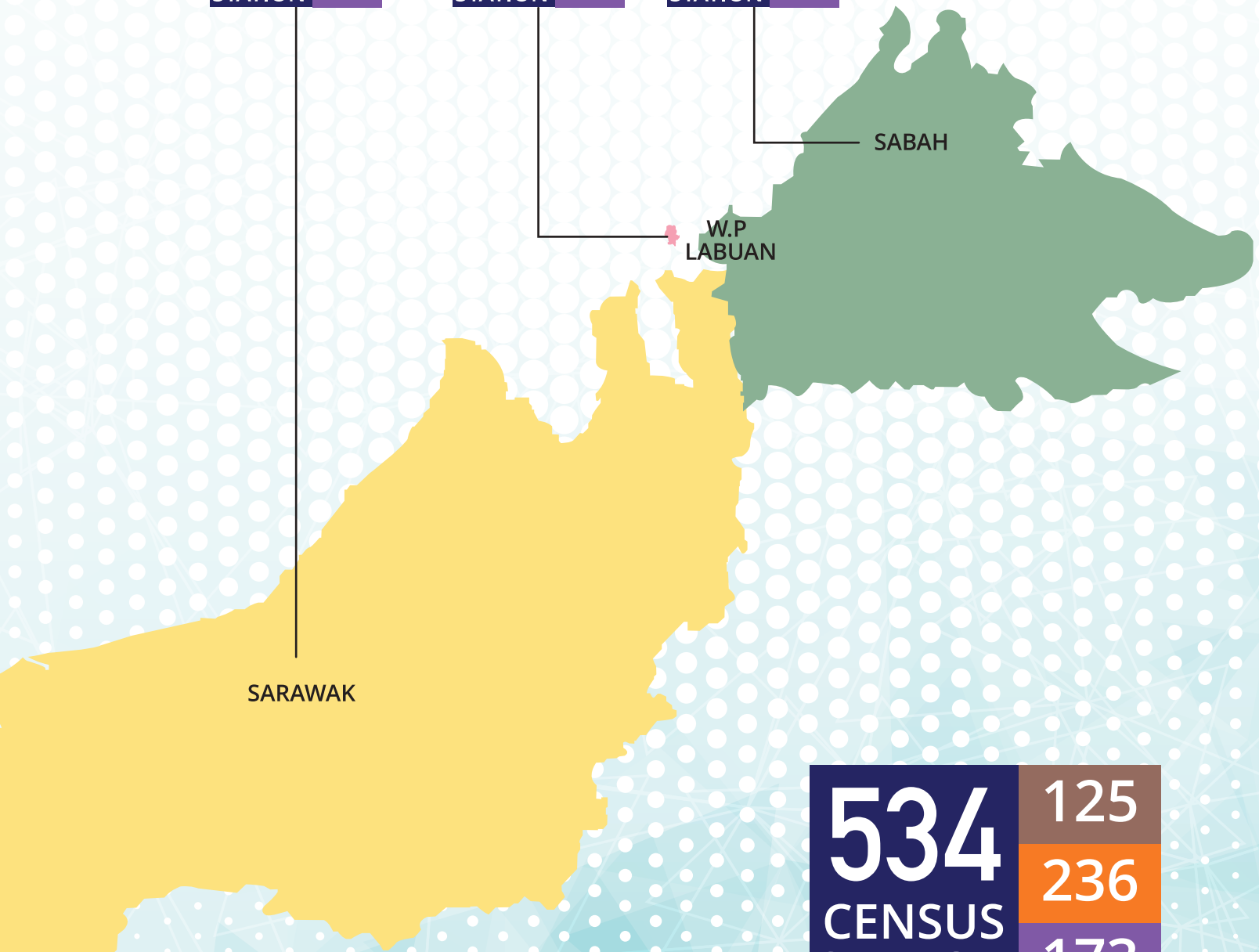
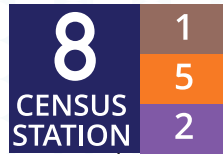
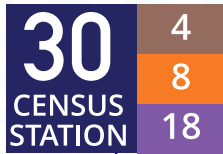
PENINSULAR MALAYSIA

534 TRAFFIC CENSUS STATIONS



SABAH, SARAWAK & W.P LABUAN

62 TRAFFIC CENSUS STATIONS



TRANSITION FROM MANUAL TO AUTOMATION OF TRAFFIC COUNT

The detection of vehicular presence and road occupancies has historically been performed primarily on or near the surface of the road. The exploitation of thermal camera technology in recent years, has allowed traffic detection to occur in a non-intrusive fashion, at locations above or to the side of the roadway.

Automation of traffic count is carried out in Year 2019 by introducing FLIR Traffic Technology ThermiCam Solution. ThermiCam is an integrated thermal camera and detector for vehicle and bike detection. ThermiCam does not need light to operate, but uses the thermal energy emitted from vehicles and bicyclists. This enables the sensor to detect vehicles and bikes in the darkest of nights, over a long range and in the most difficult weather conditions. The result is reliable, 24/7 traffic detection for a wide range of applications.



Figure 4: Installation at site

FLIR ThermiCam is an integrated video camera and detector for vehicle detection. FLIR ThermiCam does not need light to operate but provides reliable traffic detection in the darkest of nights, over a long range and in the most difficult weather conditions, based on the thermal energy emitted from vehicles.

FLIR ThermiCam offers vehicle counting. This functionality can work simultaneously with the presence detection functionality and uses the same detection zones and regions, as shown in Figure 3.

FLIR ThermiCam is capable of collecting traffic data, including volume, speed, occupancy, headway, gap time and vehicle classification (up to 6 classes). The integrated traffic data can be provided for each lane and each vehicle class separately. Additionally, FLIR ThermiCam can give outputs and/or events when a change in the traffic flow (flow speed, zone occupancy, giving level of service (LOS) is detected.



Figure 3: FLIR Thermicam, Detection Zone & Region

KEY BENEFITS

- Camera and detector integrated into 1 unit, as shown in Figure 4.
- Field proven detection performance.
- 24-hour detection, at night and in the most difficult weather conditions, no need for additional lighting.
- Detection over long range and across different lanes (typically up to 4-depending on lens)

SELECTION CRITERIA OF CENSUS LOCATION

Below are the selection criteria of census location:



Census station are set up along Federal highway / Major state road with Average Daily Traffic (ADT) more than 3000 veh / day



Census station are established between urban centers with population more than 5000 and other activity on traffic generating center like airport, port, industrial, and development areas, tourism and recreational centers.



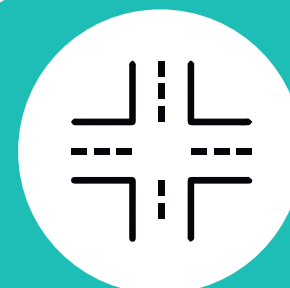
It is not necessary to set up two stations on both sides of a small town (with population less than 5000) on a through road.



Road segment must have uniform geometry 1km before and after census station (number of lanes and lane width)



No alternative roads align with census station road section.



Census station needs to be set up far away from main junction or at least 500m from main junction.



It should be away from major access, junction, school area, u-turn and etc. where intra traffic tends to be prominent.



A straight, flat portion of road and no obstruction is preferred to enable enumerators to spot vehicles at distance (to minimise missing in counting).

TYPE OF CARRIAGEWAY

There are two types of carriageway. Based on NTJ 27/2012 Terminologi Jalan shows that the type of the carriageway divides into two categories which is single carriageway and dual carriageway.

The detail of the description as figure below:

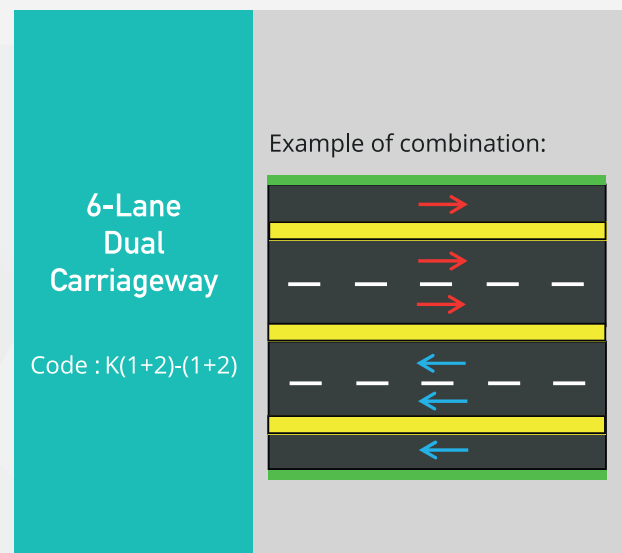
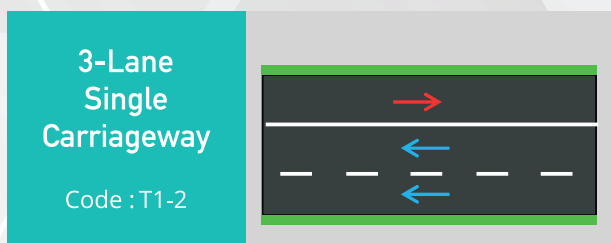
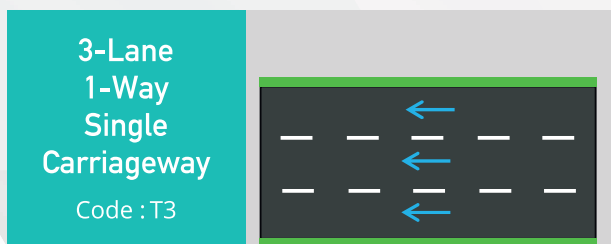
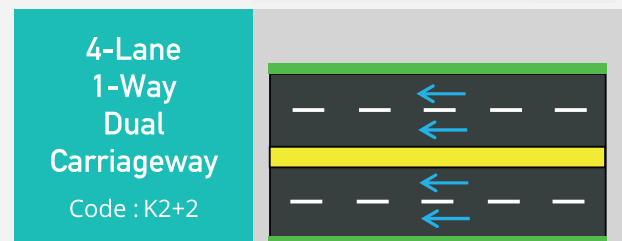
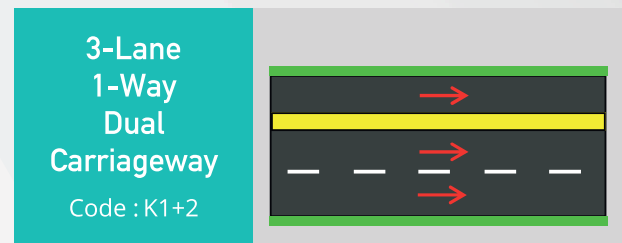
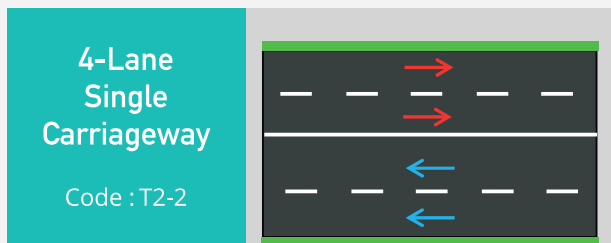
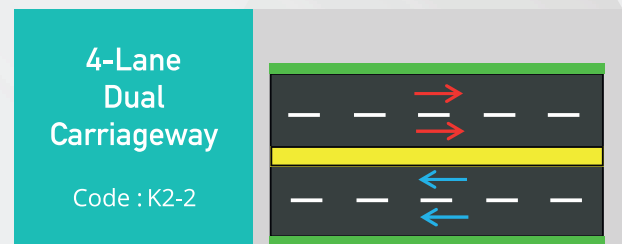
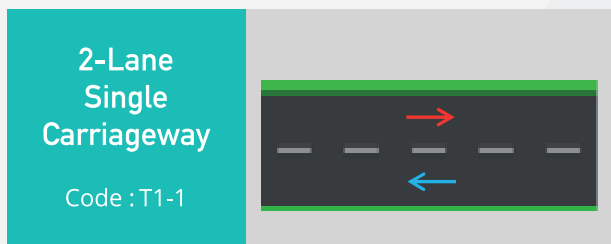


Figure 5: System Code for Single Carriageway

Figure 6: System Code for Dual Carriageway

LEVEL OF SERVICE (LOS)

Level of Service (LOS) in general, is a measure of effectiveness by which engineers determine the quality of services on elements of transportation infrastructure. It is a qualitative measure of the effect of a number of factors, which include speed and travel time, traffic interruptions, freedom of manouvere, safety, driving comfort and convenience and operating cost.

SERVICE VOLUME

The service volume is the maximum volume of traffic that a designed road will be able to serve without the degree of congestion falling below a preselected level as defined by Level of Service (LOS), which is the operating conditions of the Level of Service (LOS) used.

Table 1 : Level of service (LOS)

	ILLUSTRATION OF LEVEL OF SERVICE	TECHNICAL DESCRIPTION
LOS A		Free-flow traffic with individual users virtually unaffected by the presence of others vehicle in the traffic stream.This is a condition of free flow with low volume and high speed of vehicle travel on the highways.
LOS B		Stable traffic flow with a high degree of freedom to select speed and operating condition but with some influence from the other users.
LOS C		Restricted flow that remain stable but with significant interaction with others in the traffic stream. The general level of comfort and convenience decline noticeable at this level. Speed and manoeuvrability are closely controlled by the higher volume. Most of the drivers are restricted in their freedom to select their own speed, change lane or pass.
LOS D		High-density flow in which speed and freedom to manoeuvre are severely restricted and comfort and convenience have decline even though flow remain stable. This level represent unstable flow with operating speed are being maintain, though considerably affected by changes in operating condition.
LOS E		Unstable flow at or near capacity levels with poor levels of comfort and convenience. This level represents operating at lower operating speed with volume with at or near the capacity of the highways. Flow is unstable and stoppage may occur for a momentary duration.
LOS F		Forced traffic flow in which the amount of traffic approaching a point exceeds the amount that can be served. LOS F is characterising by poor time travel, low comfort, convenience, and increase accident exposure. This condition describes a force flow operation at low speed where volumes are below the capacity. Speed is reduced substantially and stoppage may occur for short or long periods of time because of the downstream condition.

Source : Malaysian Highway Capacity Manual (MHCM) 2011

Basic Calculation to determine the LOS (Mainline) Level of Service (LOS)

The Level of Service (LOS) is calculated into volume of capacity ratio (V/C) as per equation 1.0 below. Maximum hourly traffic volume in the formula must be converted to passenger car unit (pcu) by using the pcu equivalent factor in Table 2. Table 3 also gives the ranges of V/C ratio as an indicator for the Level of Service.

$$LOS = \frac{\text{Maximum Hourly Traffic Volume, } V \text{ (pcu)}}{\text{Maximum Hourly Capacity, } C \text{ (pcu)}} \quad (\text{equation 1.0})$$

Note: For the purpose of detail calculation Level Of Service (LOS), reference shall be made to Malaysia Highway Capacity Manual (MHCM) 2011.

Table 2: PCU Equivalent Factor

VEHICLE CLASSES	PCU Equivalent Factor (Rural Standards)	PCU Equivalent Factor (Urban Standards)	PCU Equivalent Factor (Roundabout Design)	PCU Equivalent Factor (Traffic Signal Design)
Passenger Cars	1.00	1.00	1.00	1.00
Motorcycles	1.00	0.75	0.75	0.33
Light Vans	2.00	2.00	2.00	2.00
Medium Lorries	2.50	2.50	2.80	1.75
Heavy Lorries	3.00	3.00	2.80	2.25
Buses	3.00	3.00	2.80	2.25

Source: A Guide on Geometric Design of Roads , REAM-GL 2/2002

Table 3: Level of service Indicator

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F
V/C Ratio < 0.6	V/C Ratio 0.60 - 0.69	V/C Ratio 0.70 - 0.79	V/C Ratio 0.80 - 0.89	V/C Ratio 0.90 - 0.99	V/C Ratio > 1.0
Free flow	Stable flow with slight delay	Stable flow with acceptable delay	Approaching unstable flow with tolerable delay	Unstable flow	Forced flow

Capacity

The term highway capacity pertains to the ability of a roadway to accommodate traffic. It is defined as the maximum number of vehicles that can pass over a given section of a lane or a roadway during time period under prevailing roadway and traffic conditions. Capacity often stated in terms of passenger car unit (pcu).

Capacity Under Ideal Condition

Under the ideal condition, the possible capacity for uninterrupted flow are as follows:

- a) For 2-lane two way (total) = 2,800 pcu / hour
- b) For multi lane (per lane) = 2,000 pcu / hour

Ideal conditions consist of the following for two lane roads:

- i. Design speed greater than or equal to 100 kph.
- ii. Lane width greater than or equal to 3.65m (12').
- iii. Clear shoulders wider than or equal to 1.83m (6').
- iv. No "No Passing Zone" on the highway.
- v. All passenger cars in the traffic streams.
- vi. A 50/50 directional speed.
- vii. No impediment to through traffic due to traffic control or turning vehicles.
- viii. Level terrain.

Where one or more of these conditions are not met, the actual capacity can be calculated as above.

Maximum Hourly Capacity, C

The maximum hourly traffic capacity

$$C = I \times R \times T \quad (\text{equation 2.0})$$

where

C = is the maximum one way hourly capacity
I = is the ideal hourly capacity as per Table 4 below.

R = is the roadways Reduction Factor as in Table 5 below
T = is the traffic reduction factor as in Table 6 below

Table 4 : Maximum Hourly Capacity

ROAD TYPE	Passenger Vehicle Units (PCU) Per Hour
MULTILANE	2000 per lane
TWO LANES (Bothways)	2800 for bothways

****Table 5:** Carriageways Roadway Reduction Factor

CARRIAGEWAY WIDTH	Paved Shoulder Width			
	V/C Ratio	2.00m	1.50m	1.25m
7.5m	1.00m	0.97m	0.94m	0.90m
7.0m	0.88m	0.86m	0.83m	0.79m
6.0m	0.81m	0.78m	0.76m	0.73m
5.0m	0.72m	0.70m	0.67m	0.64m

Type of Terrain

****Table 6:** Traffic Reduction Factor



MOUNTAINOUS

$$T = 100 / (100 + 5 * P_c)$$



ROLLING

$$T = 100 / (100 + 2 * P_c)$$



FLAT

$$T = 100 / (100 + P_c)$$

NOTE

- i. *P_c is the estimated percentage of commercial vehicles referred to medium and heavy goods vehicles with unladen weight exceeding 1.5 tonne.
- ii. **For the Mainline Highways R5/R6 and U5/U6 table 4 and 5 are considered not necessary.

Traffic Forecasting

The total daily traffic at the certain period (V_x) is calculated as follows:

$$V_x = V_1 (1+r)^x \quad (\text{equation 3.0})$$

Where;

V_x = volume of daily traffic after x years V₁ = initial daily traffic x = design period (year)

The traffic reach the daily capacity in number of years (n) is calculated as follows:

$$n = \frac{\log C/V}{\log (1+r)} \quad (\text{equation 4.0})$$

where

n = period required to reach capacity
V = maximum hourly traffic capacity

C = maximum hourly traffic capacity
r = annual traffic growth

Source : Arahan Teknik Jalan 5/85

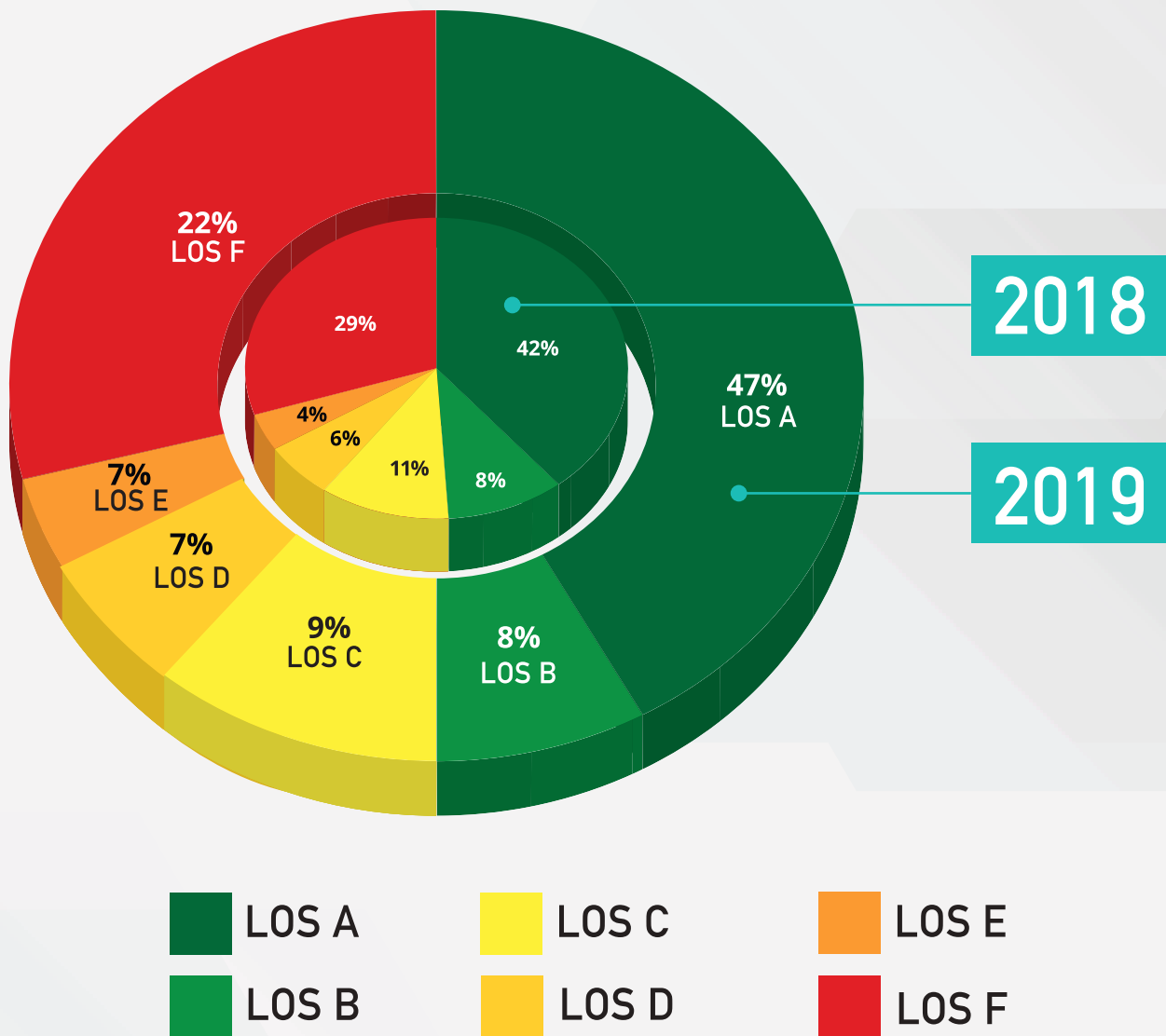


Figure 7 : The distribution of Level of Service (LOS) of the roads at the 534 census stations in 2018 and 2019.

Level of Services (LOS) are the qualitative measures that describe traffic conditions in terms of speed, travel time, freedom to maneuver, comfort, convenience, traffic interruption and safety. LOS A represents the best condition, while LOS F represents heavily congested flow with traffic demands exceeding highway capacity.

By referring to the National Traffic Census 2019, Figure 7 shows that 22% of the roads in 2019 at the 534 census stations is already saturated (LOS F). There is an increase of LOS A in road segments with uncongested traffic flow. These shows that the Level of Service (LOS) of these roads are getting better due to the decrease of traffic volume at the particular roads.

Capacity is the maximum rate at which vehicles can traverse a point or short segment during a specified time period. Projected capacity year is the year of traffic volume is estimated to reach road capacity. In this report, the R value shows that the LOS has already reached F. However, there is some of the census station shows the reduction of percentage growth rate that represent by symbol (-).

TRAFFIC VOLUME TREND IN MALAYSIA

By using the Method of Least Squared Regression Analysis of traffic flow data for the year 2010 to 2019, RTVM gathered the traffic growth rates based on the calculation of compound "normal" traffic growth in terms of percentage growth of total traffic per year. Extrapolation based on this rate is used for the capacity year computation. Capacity year refers to the year when the projected traffic volume equals the computed road capacity.

Figure 8 shows the Malaysian Yearly 16-Hour Traffic Volume from the year 2010 to 2019 based on National Traffic Census station. As highlighted, a decrease of 8.83% in 2019 can be seen for the 16-hour traffic volume compared to the year 2018.

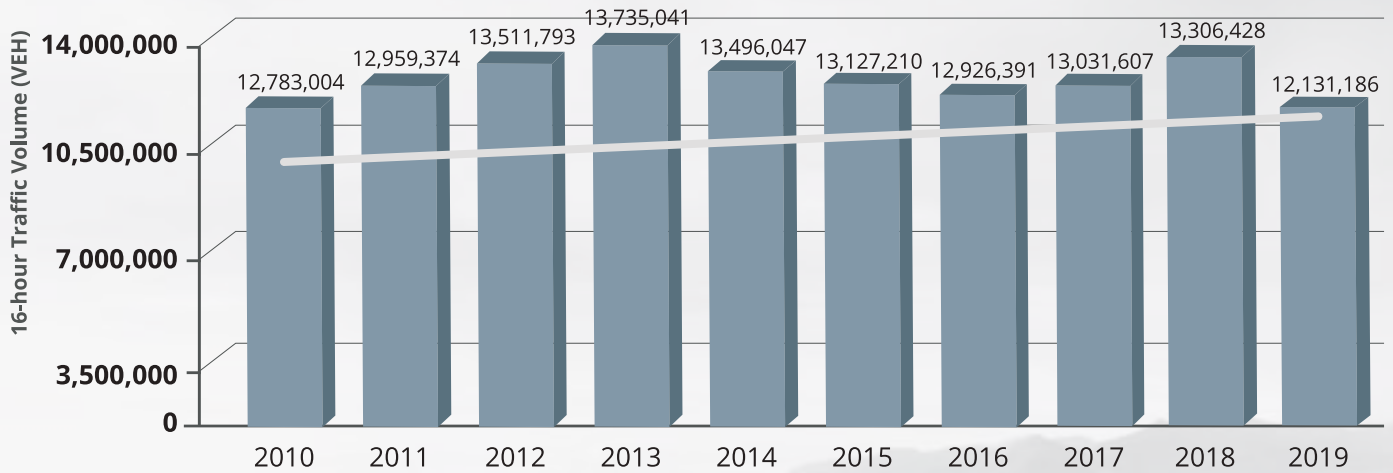


Figure 8 : Yearly 16-hour Traffic Volume (2010 - 2019)

$$y = 1E+07e^{0.0058x} \quad | \quad R^2 = 0.61$$

Normal Growth = 0.58%



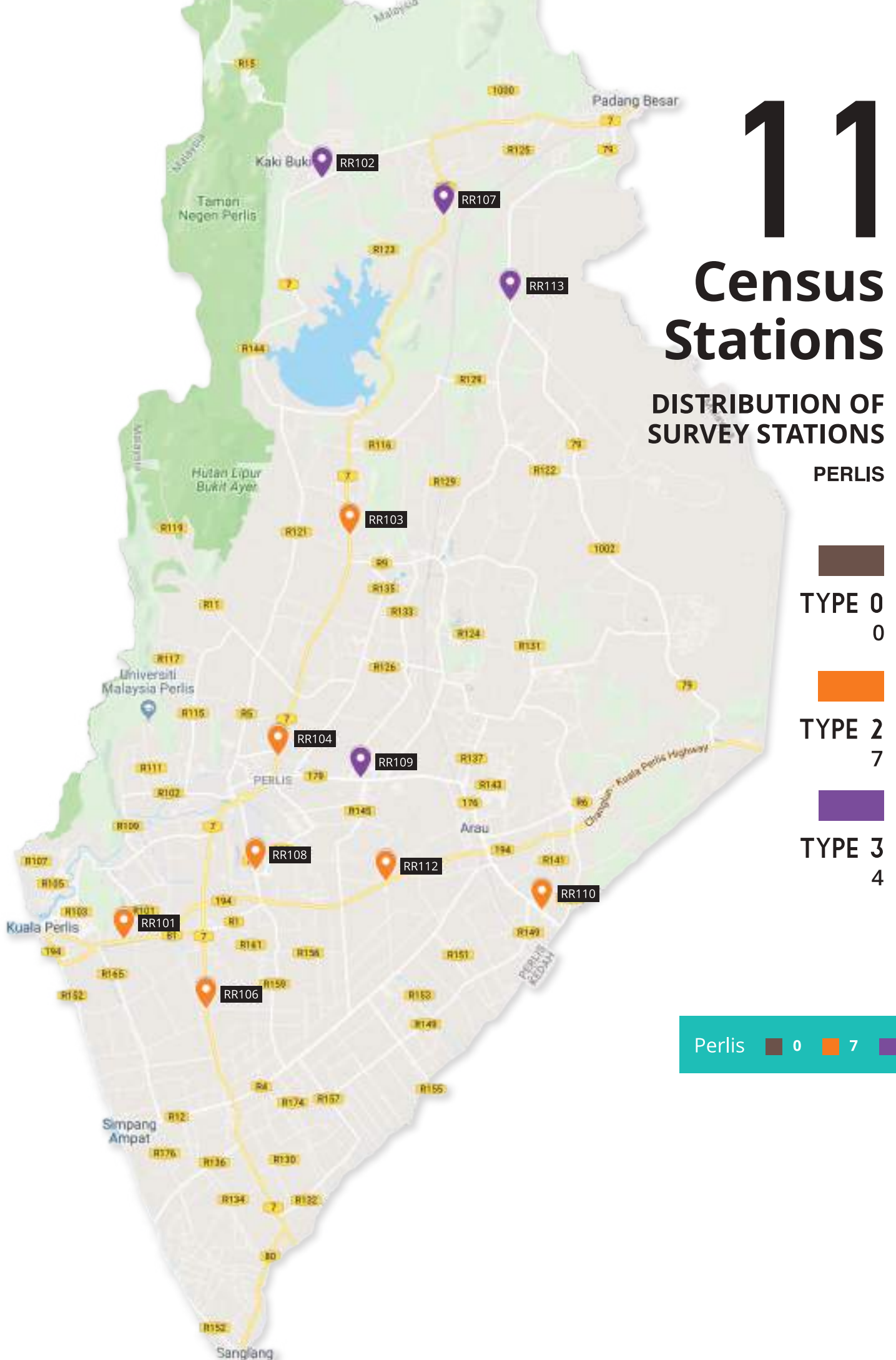
PERLIS

Jalan Kuala Perlis - Changlun (FT194)

11

Census Stations

DISTRIBUTION OF SURVEY STATIONS



Perlis

Census Station Number	Survey Type	Route Number	KM	Description Of Location	GPS Coordinate (WGS84) (Latitude, Longitude)	Type Of Carriageway
RR101	2	194		Kuala Perlis - Changlun	6.3936111 100.1567222	K2-2
RR102	3	265		Titi Tinggi - Tasoh	6.6373056 100.2206111	T1-1
RR103	2	7		Kangar - Padang Besar	6.5231944 100.2295833	T1-1
RR104	2	7		Kangar - Padang Besar	6.4523056 100.2064444	K2-2
RR106	2	7		Kangar - Alor Setar	6.3713333 100.1832222	T1-1
RR107	3	7		Kangar - Padang Besar	6.6254770 100.2598320	T1-1
RR108	2	R1		Jalan Raja Syed Alwi	6.4157778 100.1991944	K2-2
RR109	3	R9		Mata Ayer - Beseri	6.4452900 100.2330700	K2-2
RR110	2	176		Kangar - Kodiang	6.4030000 100.2915278	K2-2
RR112	2	194		Kuala Perlis - Changlun	6.4122220 100.2412400	K2-2
RR113	3	R16	79.0	Chuping - Padang Besar	6.5979300 100.2813200	T1-2

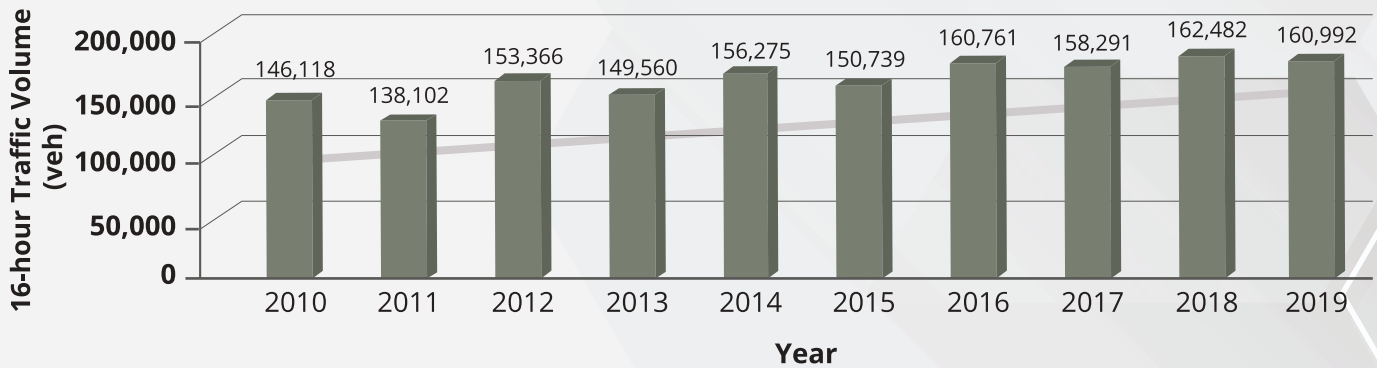
Perlis

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
RR101	18,337	1,638	1800 - 1900	56.4	9.4	10.5	1.5	1.8	20.3	A	2160	6324	2066
RR102	4,985	610	0700 - 0800	38.5	6.2	8.8	0.9	2.0	43.5	A	765	1878	-
RR103	17,644	1,805	1700 - 1800	57.7	6.2	6.0	1.3	0.2	28.5	F	2136	2030	R
RR104	27,948	2,532	0700 - 0800	73.0	0.9	1.7	0.2	0.8	23.4	A	2668	7016	2067
RR106	15,891	2,449	0700 - 0800	57.7	8.6	5.8	1.2	1.5	25.2	F	3005	2271	R
RR107	6,484	646	1700 - 1800	59.9	8.0	2.7	0.7	0.4	28.3	A	738	2185	2052
RR108	23,362	2,159	1700 - 1800	75.0	4.1	3.7	0.4	1.0	15.8	A	2427	6853	2087
RR109	12,912	1,263	1700 - 1800	57.8	5.3	4.0	0.7	0.3	31.9	A	1431	6857	-
RR110	11,785	1,096	1700 - 1800	44.4	11.4	26.2	0.5	2.9	14.6	A	1726	5556	-
RR112	16,799	1,759	1700 - 1800	74.1	5.0	4.6	0.6	1.5	14.2	A	2043	6744	2041
RR113	4,845	457	1700 - 1800	66.0	2.4	4.8	3.5	3.7	19.6	A	567	5197	-



Perlis

Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
RR101	15,198	15,422	16,728	17,063	15,925	17,186	17,980	18,430	18,913	18,337	2.32	0.84
RR102	4,418	8,309	8,967	5,430	4,381	6,148	6,061	6,695	6,947	4,985	-0.60	0.01
RR103	14,855	19,892	14,730	13,216	15,889	17,202	17,411	15,904	16,106	17,644	0.83	0.03
RR104	30,944	19,528	25,887	25,886	23,572	27,287	30,390	29,622	29,737	27,948	2.02	0.19
RR106	13,316	14,296	14,625	13,042	14,367	14,707	15,279	14,351	14,524	15,891	1.28	0.46
RR107	4,739	4,752	5,617	5,941	6,136	5,924	6,401	6,123	6,378	6,484	3.34	0.76
RR108	21,992	20,466	23,430	20,572	2,811	21,986	25,427	24,192	24,426	23,362	1.54	0.42
RR109	14,372	7,384	14,513	20,570	22,811	10,555	10,768	11,285	12,071	12,912	-0.90	0.01
RR110	11,419	11,627	11,461	10,183	10,864	10,997	10,634	10,166	10,247	11,785	-0.64	0.12
RR112	10,798	13,026	13,627	14,422	16,450	15,919	17,623	18,419	20,073	16,799	5.50	0.82
RR113	4,067	3,400	3,784	3,240	3,071	2,829	2,789	3,106	3,059	4,845	-0.40	0.01



$$y = 141930e^{0.0142x} \quad | \quad R^2 = 0.71$$

Normal Growth = 1.40%

Yearly 16-Hour Traffic Volume (2010-2019) & Normal Traffic Growth with Exponential Trendline for the Year 2019 in Perlis

**0.92%
DECREASE**

There are 11 census stations in Perlis. The yearly 16-hour traffic volume displays the highest traffic volume in the year 2018 which is 162,482 vehicles. There is a decrease of 0.92% in traffic volume for the year 2019 compared to 2018.



For the year 2019, the observed traffic growth rate for the state of Perlis is 1.40%. The basis of traffic growth rate record is to be used as a projection indicator of subsequent traffic growth rate for road forethought as well as for the expansion of current and new roads in Perlis.



KEDAH

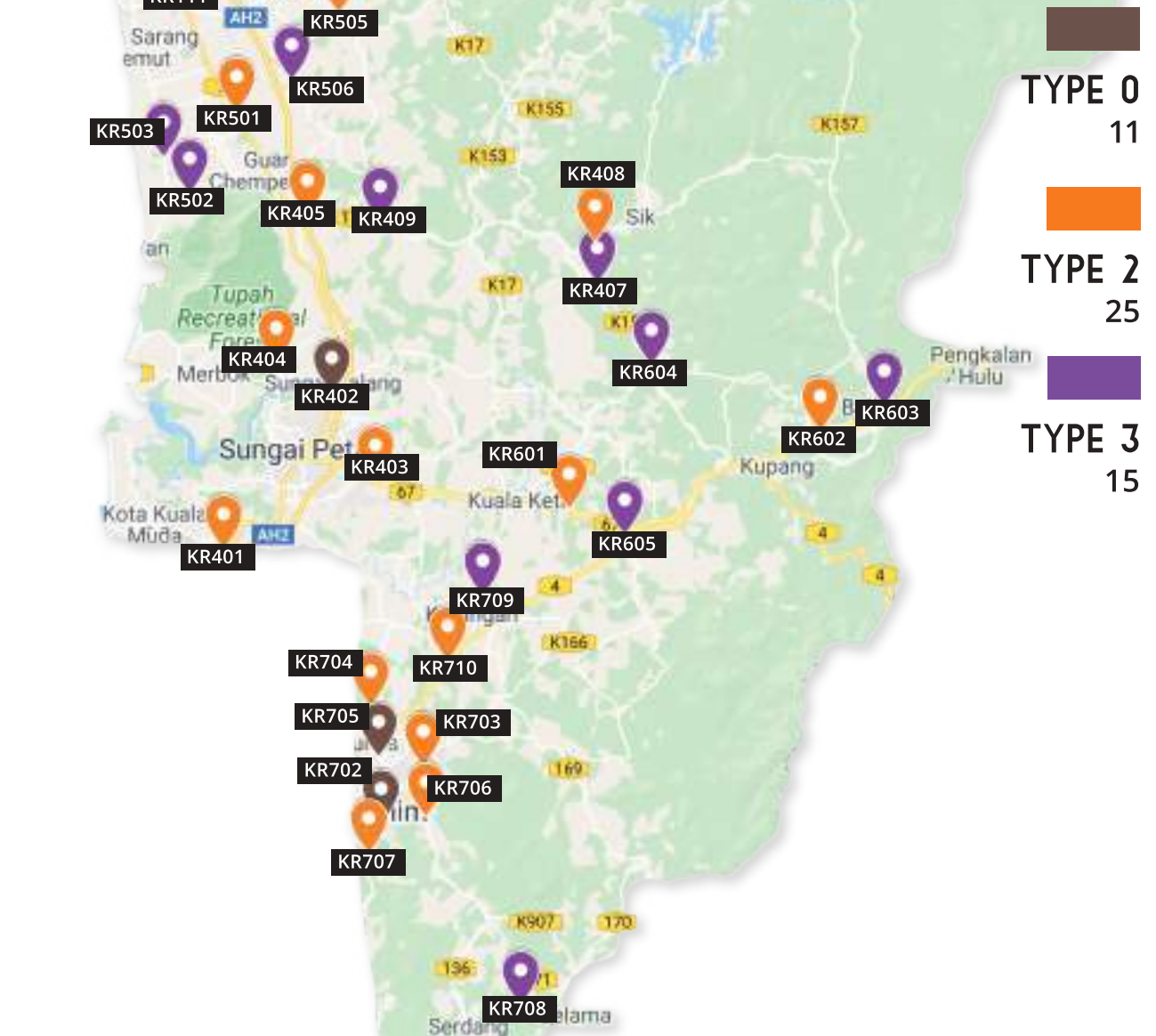
*Jambatan Merdeka
Jalan Butterworth - Sg Petani (FT001)*

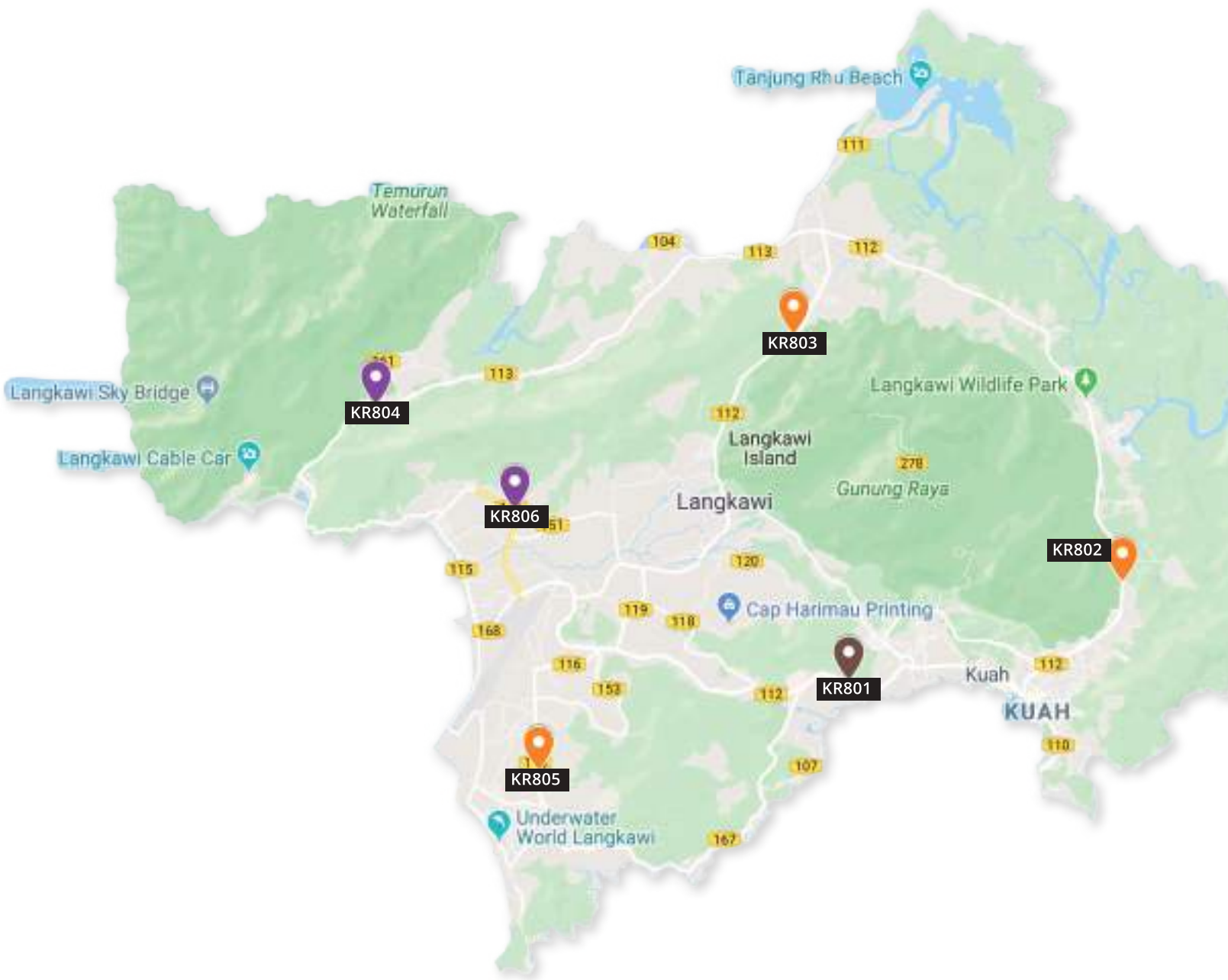
51

Census Stations

DISTRIBUTION OF SURVEY STATIONS

KEDAH





Pokok Sena	1	2	0
Kota Setar	4	3	0
Kubang Pasu	2	2	2
Kuala Muda	1	4	1
Sik	0	1	1
Yan	0	1	2
Pendang	0	2	2
Baling	0	2	3
Kulim-Bandar Baharu	2	5	2
Langkawi	1	3	2



Pokok Sena

Census Station Number	Survey Type	Route Number	KM	Description Of Location	GPS Coordinate (WGS84) (Latitude, Longitude)	Type Of Carriageway
KR101	0	175	4	Jalan Langgar	6.1506944 100.4030556	K2-2
KR102	2	175	12	Alor Star - Langgar - Pokok Sena	6.1508333 100.4558333	K2-2
KR103	2	K8	23	Alor Star - Pokok Sena - Kuala Nerang	6.1775000 100.5302778	T1-1

Kota Setar

KR105	0	78	4	Alor Star - Kuala Kedah	6.0962810 100.3481820	K2-2
KR106	2	78	7	Alor Star - Kuala Kedah	6.0963889 100.3033333	K2-2
KR107	0	255	5	West Alor Star Bypass	6.0938889 100.3552778	K2-2
KR108	0	255	3	Package LLM Expressway	6.1425000 100.3561111	K2-2
KR109	0	135	3.5	Alor Star - Pendang	6.1201721 100.3961621	T1-1
KR110	2	7	8	Alor Star - Simpang Empat - Kangar	6.1641667 100.3097222	T1-1
KR111	2	1	16	Alor Star - Guar Chempedak	5.9795981 100.3978061	T1-1

Kubang Pasu

KR201	0	1	16.9	Alor Star - Jitra	6.2111610 100.4152001	K2-2
KR202	0	1	20.6	Alor Star - Changlun	6.2713889 100.4198889	K2-2
KR203	2	1		Jitra - Changlun	6.4831770 100.4246010	K2-2
KR204	2	176	20.6	Alor Star - Jitra - Kodiang	6.2764761 100.4007941	K2-2
KR207	3	7		Jalan Tunku Abdul Rahman	6.2683640 100.2225470	T1-1
KR208	3	194		Lebuhraya Kuala Perlis - Changlun	6.4509980 100.3745980	K2-2

Kuala Muda

KR401	2	1	70.8	Alor Star - Sungai Petani - Butterworth	5.5674722 100.4281944	T1-1
KR402	0	1	53.1	Alor Star - Sungai Petani	5.6847500 100.5096944	T2-2
KR403	2	1	7	Alor Star - Sungai Petani - Kuala Ketil	5.6191150 100.5429090	K2-2
KR404	2	253	1	Bedong - Tanjung Dawai	5.7072600 100.4678630	T1-1
KR405	2	175	36.2	Alor Star - Gurun - Jeniang	5.8183889 100.4913889	K2-2
KR409	3	175		Jalan Gurun - Kepala Batas	5.8133480 100.5461640	K2-2

Sik

KR407	3	K15	4	Jalan Parit Panjang	5.7674540 100.7104330	T1-1
KR408	2	175	66.8	Alor Star - Jeniang - Sik	5.7987460 100.7087060	T1-1

Yan

Census Station Number	Survey Type	Route Number	KM	Description Of Location	GPS Coordinate (WGS84) (Latitude, Longitude)	Type Of Carriageway
KR501	2	1		Alor Star - Sungai Petani	5.8959890 100.4381010	T1-1
KR502	3	K146		Alor Star - Guar Chempedak - Yan	5.8345620 100.4023390	T1-1
KR503	3	K1		Alor Star - Kuala Kedah - Yan	5.8620330 100.3828480	T1-1

Pendang

KR504	2	K133	5	Alor Star - Kota Sarang Semut - Pendang - Titi Haji Idris	5.9842080 100.4618930	T1-1
KR505	2	K151	4	Pendang - Sg Tiang	5.9702520 100.5148610	T1-1
KR506	3	K147	10	Pendang - Jenun - Padang Lembu	5.9200950 100.4795730	T1-1
KR507	3	K128	9	Pendang - Tobiar - Kubur Panjang	6.0827900 100.5481540	T1-1

Baling

KR601	2	67	23.9	Sungai Petani - Baling	5.5976891 100.6890021	T1-1
KR602	2	67	51.5	Sungai Petani - Baling	5.6559910 100.8785130	T1-1
KR603	3	76	1	Gerik Road - Pkln Hulu - Baling	5.6751001 100.9267671	T1-1
KR604	3	K15	1.3	Bt 5 - Parit Panjang - Bt 42	5.7058600 100.7512400	T1-1
KR605	3	4		Kulim - Baling - Gerik	5.5780890 100.7309200	T1-1

Kulim-Bandar Baharu

KR702	0	254		Kulim - Bukit Mertajam	5.3611430 100.5468190	K2-2
KR703	2	169		Kulim - Junjong	5.4040851 100.5788671	K2-2
KR704	2	136	56	Kulim - Mahang	5.4492510 100.5390950	T1-1
KR705	0	136	49	Kulim - Lunas - Pdg. Serai - M. Pulas	5.4113400 100.5452280	K2-2
KR706	2	136		Kulim - Lunas - Pdg. Serai - M. Pulas	5.3660400 100.5808720	T2-2
KR707	2	K145	5	Kulim - Junjong	5.3388056 100.5376660	T1-1
KR708	3	171	5	Serdang - Selama	5.2245000 100.6523611	T1-1
KR709	3	136		Kulim - Lunas - Pdg. Serai - M. Pulas	5.5323790 100.6237240	T1-1
KR710	2	4		Kulim - Lunas - Sg Karangan - Baling	5.4832330 100.5971820	T1-1

Langkawi

KR801	0	112	4.5	Pekan Kuah - Padang Mat Sirat	6.3252500 99.8080833	K2-2
KR802	2	112	1.5	Pekan Kuah - Tanjung Rhu	6.3476691 99.8702641	T1-1
KR803	2	112	1	Padang Lalang - Ulu Melaka	6.4034941 99.7955091	T1-1
KR804	3	113	1	Kg Kok - Kg Ewa	6.3875333 99.7005555	T1-1
KR805	2	116	1	Simpang Kedwang - Lapangan Terbang	6.3049850 99.7375960	T1-1
KR806	3	114		Jalan Kuala Teriang	6.3639200 99.7321700	T1-1

Pokok Sena

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
KR101	51,811	4,264	1700 - 1800	64.8	7.6	6.3	0.4	1.2	19.7	C	5127	6674	2031
KR102	27,533	2,274	1800 - 1900	69.4	2.9	4.2	0.4	1.5	21.6	A	2572	6783	2116
KR103	18,445	1,721	1800 - 1900	52.3	7.0	6.1	1.2	0.3	33.1	E	2051	2160	2024

Kota Setar

KR105	34,766	2,641	1700 - 1800	72.2	1.0	2.0	0.3	0.8	23.8	A	2801	7764	2088
KR106	31,347	2,532	1800 - 1900	63.7	1.3	2.3	0.2	0.9	31.6	A	2705	7740	2046
KR107	38,587	3,002	1700 - 1800	80.1	2.1	2.5	0.4	1.0	14.0	A	3255	7707	-
KR108	30,391	2,516	1800 - 1900	73.4	0.8	1.4	0.6	1.7	22.1	A	2702	7716	-
KR109	31,602	3,754	0700 - 0800	51.0	5.8	1.5	0.1	0.1	41.5	F	4068	2479	R
KR110	18,590	1,599	1800 - 1900	72.6	3.9	5.6	1.0	2.4	14.5	F	1903	1876	R
KR111	21,323	1,744	1800 - 1900	55.3	10.4	4.9	3.8	0.2	25.4	F	2193	2005	R

Kubang Pasu

KR201	24,127	2,575	1800 - 1900	61.2	7.6	6.7	0.5	1.3	22.7	A	3120	6639	-
KR202	31,183	2,374	1700 - 1800	70.0	1.8	1.8	0.2	0.4	25.8	A	2507	7034	2123
KR203	16,122	1,295	1800 - 1900	66.3	2.3	2.3	3.4	3.4	22.4	A	1545	6599	-
KR204	16,374	1,673	1800 - 1900	56.6	6.7	3.4	0.5	0.3	32.7	A	1893	6910	2149
KR207	17,184	1,702	1700 - 1800	49.1	14.8	4.3	0.3	1.8	29.7	F	2136	2079	R
KR208	13,214	1,469	1700 - 1800	56.8	10.6	13.4	3.8	5.6	9.8	A	2196	6513	NA

Kuala Muda

KR401	19,585	1,754	1800 - 1900	59.1	3.5	6.2	0.5	1.7	29.0	E	2058	2246	-
KR402	49,885	4,322	1800 - 1900	61.8	4.4	3.2	1.2	0.2	29.1	C	4846	6880	2041
KR403	29,323	2,543	1800 - 1900	73.4	1.8	3.7	0.7	1.9	18.6	A	2859	6778	2049
KR404	12,698	1,473	0700 - 0800	44.3	8.3	4.2	2.3	0.3	40.6	D	1764	2019	2033
KR405	23,068	2,062	1700 - 1800	68.9	2.7	4.2	0.9	2.1	21.2	A	2371	7463	2134
KR409	12,887	1,156	1800 - 1900	68.2	2.0	4.5	0.2	1.6	23.5	A	1298	6776	NA

Sik

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
KR407	6,917	595	1500 - 1600	47.6	15.2	1.9	3.1	1.0	31.2	A	751	1928	2097
KR408	11,097	975	1800 - 1900	79.8	5.3	4.6	0.3	1.4	8.6	A	1108	2080	2035

Yan

KR501	17,083	1,580	0700 - 0800	56.9	7.9	8.4	2.3	0.2	24.2	E	1984	2145	-
KR502	11,786	1,001	1800 - 1900	54.5	8.4	3.5	0.2	0.0	33.3	A	1142	2268	2042
KR503	8,562	777	1700 - 1800	51.8	8.0	5.8	2.9	0.1	31.5	A	953	2007	2037

Pendang

KR504	10,044	990	1800 - 1900	52.0	6.2	6.0	4.5	0.5	30.9	A	1238	2473	2047
KR505	13,249	1,363	0700 - 0800	49.2	6.8	6.2	1.4	0.1	36.3	E	1623	1665	2019
KR506	5,602	752	0700 - 0800	37.5	5.8	3.9	1.1	0.5	51.2	A	864	1884	NA
KR507	7,975	897	0700 - 0800	46.5	7.6	7.8	2.3	0.0	35.8	A	1111	1856	NA

Baling

KR601	9,577	892	1800 - 1900	58.4	9.5	5.6	1.1	1.0	24.4	A	1089	2106	2085
KR602	21,500	2,193	1700 - 1800	60.8	5.3	2.3	0.2	0.3	31.0	F	2408	2396	R
KR603	9,732	950	0700 - 0800	56.5	6.8	2.3	0.2	0.3	34.0	A	1056	2016	2084
KR604	7,027	602	1700 - 1800	44.4	9.4	4.7	0.4	0.2	41.0	A	707	1996	2049
KR605	7,757	988	0700 - 0800	56.7	12.0	8.3	4.9	0.5	17.6	B	1336	1995	-

Kulim-Bandar Baharu

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
KR702	38,939	4,072	0700 - 0800	61.4	0.8	2.6	0.1	1.0	34.2	A	4346	7720	2039
KR703	19,061	2,189	0700 - 0800	71.6	0.8	1.4	0.1	0.6	25.4	A	2287	7047	-
KR704	19,113	2,533	0700 - 0800	52.7	6.3	4.5	1.2	1.1	34.2	F	2981	2045	R
KR705	32,109	2,558	1800 - 1900	59.3	1.3	3.0	0.4	1.6	34.3	A	2813	7387	-
KR706	18,327	1,959	0700 - 0800	43.6	11.9	5.0	2.3	0.6	36.7	A	2452	7194	2096
KR707	19,657	2,142	0700 - 0800	49.4	12.1	7.0	3.9	0.6	27.0	F	2820	1983	R
KR708	5,889	606	1900 - 2000	35.4	15.3	12.4	4.8	0.8	31.3	A	879	1733	2046
KR709	11,384	1,097	0800-0900	50.8	8.4	8.1	5.5	0.9	26.2	D	1465	1783	2027
KR710	16,806	2,200	1800 - 1900	50.3	7.3	5.6	4.2	0.7	32.0	F	2764	2103	R

Langkawi

KR801	30,279	2,937	1600 - 1700	67.8	6.9	3.0	0.6	0.4	21.2	A	3332	7692	2036
KR802	11,813	944	1800 - 1900	58.3	5.5	3.2	1.8	0.8	30.3	A	1092	2090	2050
KR803	10,483	1,121	1700 - 1800	53.1	11.1	3.0	0.6	0.4	31.9	B	1318	2100	2035
KR804	5,210	523	0800 - 0900	45.7	10.7	5.7	1.2	1.7	35.0	A	654	1986	-
KR805	16,175	1,488	1800 - 1900	43.1	9.3	2.3	0.5	0.1	44.7	D	1695	2123	2025
KR806	9,524	795	0700 - 0800	46.6	10.6	1.6	0.1	0.1	41.1	A	901	2008	NA

Pokok Sena

Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
KR101	42,729	46,813	42,213	46,801	54,634	55,909	54,311	50,687	51,716	51,811	2.31	0.49
KR102	26,056	22,888	23,422	29,246	25,587	29,875	26,755	24,451	24,884	27,533	0.72	0.06
KR103	14,362	19,143	14,737	21,353	17,789	15,940	17,873	15,967	16,152	18,445	0.50	0.00

Kota Setar

KR105	35,308	27,783	33,955	37,715	38,710	37,417	34,867	37,829	38,768	34,766	1.49	0.21
KR106	21,887	21,717	24,217	25,894	25,197	26,817	27,313	28,852	29,3740	31,347	3.91	0.95
KR107	39,139	38,074	41,811	46,195	45,140	39,654	39,136	38,402	39,319	38,587	-0.58	0.06
KR108	43,602	45,001	45,944	44,954	45,114	40,335	39,302	37,928	37,624	30,391	-3.62	0.72
KR109	33,589	26,744	32,255	28,764	27,154	32,632	31,501	32,929	32,981	31,602	0.90	0.10
KR110	28,137	23,023	24,145	23,108	21,379	21,374	21,275	23,093	22,215	18,590	-2.70	0.59
KR111	24,572	24,310	21,367	18,226	24,533	18,361	18,144	21,668	21,321	21,323	-1.47	0.16

Kubang Pasu

KR201	30,253	28,098	34,230	36,690	36,720	29,834	31,898	30,906	31,270	24,127	-1.50	0.13
KR202	30,402	32,311	42,822	47,474	34,003	39,660	38,036	39,669	40,387	31,183	0.54	0.01
KR203	21,873	21,549	22,093	25,439	20,458	21,373	20,115	20,992	20,509	16,122	-2.43	0.39
KR204	12,841	14,174	18,542	18,806	15,486	13,730	15,175	15,884	16,127	16,374	0.95	0.06
KR207	NA	NA	NA	NA	NA	NA	NA	NA	NA	17,184	NA	NA
KR208	NA	NA	NA	NA	NA	NA	NA	NA	NA	13,214	NA	NA

Kuala Muda

KR401	24,002	22,195	23,141	23,971	23,672	24,779	21,656	20,749	21,195	19,585	-1.79	0.48
KR402	42,989	41,858	42,018	44,288	45,565	42,823	45,430	46,737	47,050	49,885	1.64	0.78
KR403	23,337	22,551	24,494	27,266	26,565	27,263	27,150	29,030	29,703	29,323	2.94	0.87
KR404	13,942	13,483	13,291	13,715	13,623	13,359	14,405	15,573	15,918	12,698	0.75	0.11
KR405	20,697	21,254	20,640	21,416	23,458	19,570	20,452	22,235	22,522	23,068	0.87	0.21
KR409	NA	NA	NA	NA	NA	NA	NA	NA	NA	12,887	NA	NA

Sik

Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
KR407	8,082	8,134	7,324	7,862	8,217	8,044	8,366	9,918	10,414	6,917	1.22	0.11
KR408	8,631	10,055	9,649	9,458	9,374	9,666	12,559	12,705	13,232	11,097	3.90	0.60

Yan

KR501	19,387	19,618	19,249	18,853	17,797	19,854	18,221	17,748	17,695	17,083	-1.37	0.62
KR502	9,539	9,261	7,551	9,584	9,438	9,777	8,516	11,110	11,379	11,786	3.00	0.51
KR503	6,612	6,229	5,982	7,111	6,215	6,948	7,401	8,714	8,983	8,562	4.24	0.76

Pendang

KR504	9,157	6,569	9,193	9,813	9,601	10,982	10,892	9,462	9,749	10,044	2.54	0.29
KR505	8,516	7,201	7,678	8,394	9,467	9,245	11,445	12,975	13,381	13,249	7.18	0.89
KR506	-	-	3,975	3,554	6,158	5,259	5,644	6,381	6,496	5,602	NA	NA
KR507	-	-	5,631	5,552	6,377	7,008	7,633	7,687	7,826	7,975	NA	NA

Baling

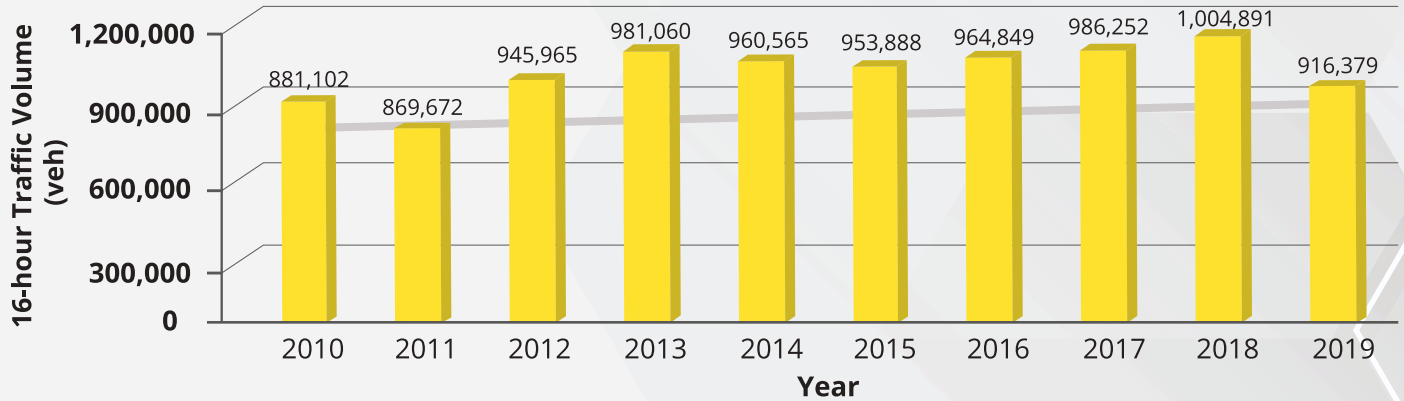
KR601	10,707	11,404	10,718	12,104	11,807	12,503	12,593	12,792	13,123	9,577	0.63	0.05
KR602	22,612	18,731	38,641	21,934	22,592	22,645	24,396	25,988	26,365	21,500	0.17	-0.01
KR603	9,122	9,245	9,353	11,005	9,499	9,231	9,758	9,967	10,141	9,732	0.70	0.12
KR604	6,265	6,248	6,701	7,569	7,580	8,175	8,177	8,938	9,720	7,027	3.56	0.49
KR605	7,277	7,926	10,322	9,864	9,109	9,926	7,527	8,602	8,933	7,757	-0.14	0.00

Kulim-Bandar Baharu

Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
KR702	31,213	34,851	41,465	40,665	46,061	43,516	44,203	45,412	46,911	38,939	2.86	0.40
KR703	30,188	27,994	30,128	30,948	26,691	26,614	29,960	28,800	28,967	19,061	-2.56	0.29
KR704	13,728	14,695	14,007	14,474	15,091	16,238	16,328	17,501	18,171	19,113	3.64	0.94
KR705	32,223	35,762	38,518	38,560	38,995	34,769	30,938	37,838	38,012	32,109	-0.28	0.01
KR706	16,113	16,446	15,548	17,987	18,556	20,440	17,510	17,231	17,975	18,327	1.40	0.26
KR707	13,935	14,510	14,422	16,186	14,664	16,301	20,838	18,670	19,513	19,657	4.44	0.77
KR708	4,298	4,295	4,530	4,851	4,759	4,452	4,385	5,091	5,060	5,889	2.54	0.61
KR709	8,486	9,479	9,896	10,458	10,493	8,334	10,419	11,255	11,244	11,384	2.57	0.52
KR710	15,148	16,853	14,529	15,544	14,020	15,756	19,861	16,459	16,631	16,806	1.41	0.19

Langkawi

KR801	22,918	24,412	25,641	26,422	31,009	32,875	35,740	35,637	37,954	30,279	4.97	0.66
KR802	12,051	11,346	13,376	13,420	14,220	13,834	15,763	15,563	16,220	11,813	2.14	0.26
KR803	9,611	8,454	9,358	11,272	9,917	11,460	11,523	11,903	12,487	10,483	2.99	0.51
KR804	3,095	3,148	12,722	9,638	3,682	4,100	3,877	4,338	4,543	5,210	-0.46	-0.11
KR805	12,471	13,837	14,135	15,773	16,934	17,505	18,869	18,061	19,054	16,175	3.87	0.63
KR806	NA	NA	NA	NA	NA	NA	NA	NA	NA	9,524	NA	NA



$$y = 898893e^{0.0092x} \quad | \quad R^2 = 0.34$$

Normal Growth = 0.92%

Yearly 16-Hour Traffic Volume (2010-2019) & Normal Traffic Growth with Exponential Trendline for the Year 2019 in Kedah

**8.81%
DECREASE**

There are 51 census stations in Kedah. The pattern of 16-hour traffic volume has fluctuated since the year 2010 until the year 2018. Between the year 2018 and 2019, there is a difference between the traffic volumes by 8.81% which shows that the number of vehicles in the year 2019 has decreased by 88,512.



For the year 2019, the observed traffic growth rate for the state of Kedah is 0.92%. The basis of traffic growth rate record is to be used as a projection indicator of subsequent traffic growth rate for road forethought as well as for the expansion of current and new roads in Kedah.

A photograph of a cable-stayed bridge at dusk. The bridge features four tall, slender towers with red lights at their peaks. The bridge deck is illuminated with warm yellow lights, and the sky is a deep blue. In the foreground, the bridge's support structure is visible, with several small, conical structures. A teal text box is overlaid on the lower left side of the image.

PULAU PINANG

Jambatan Sultan Abdul Halim Mu'adzam Syah (E28)

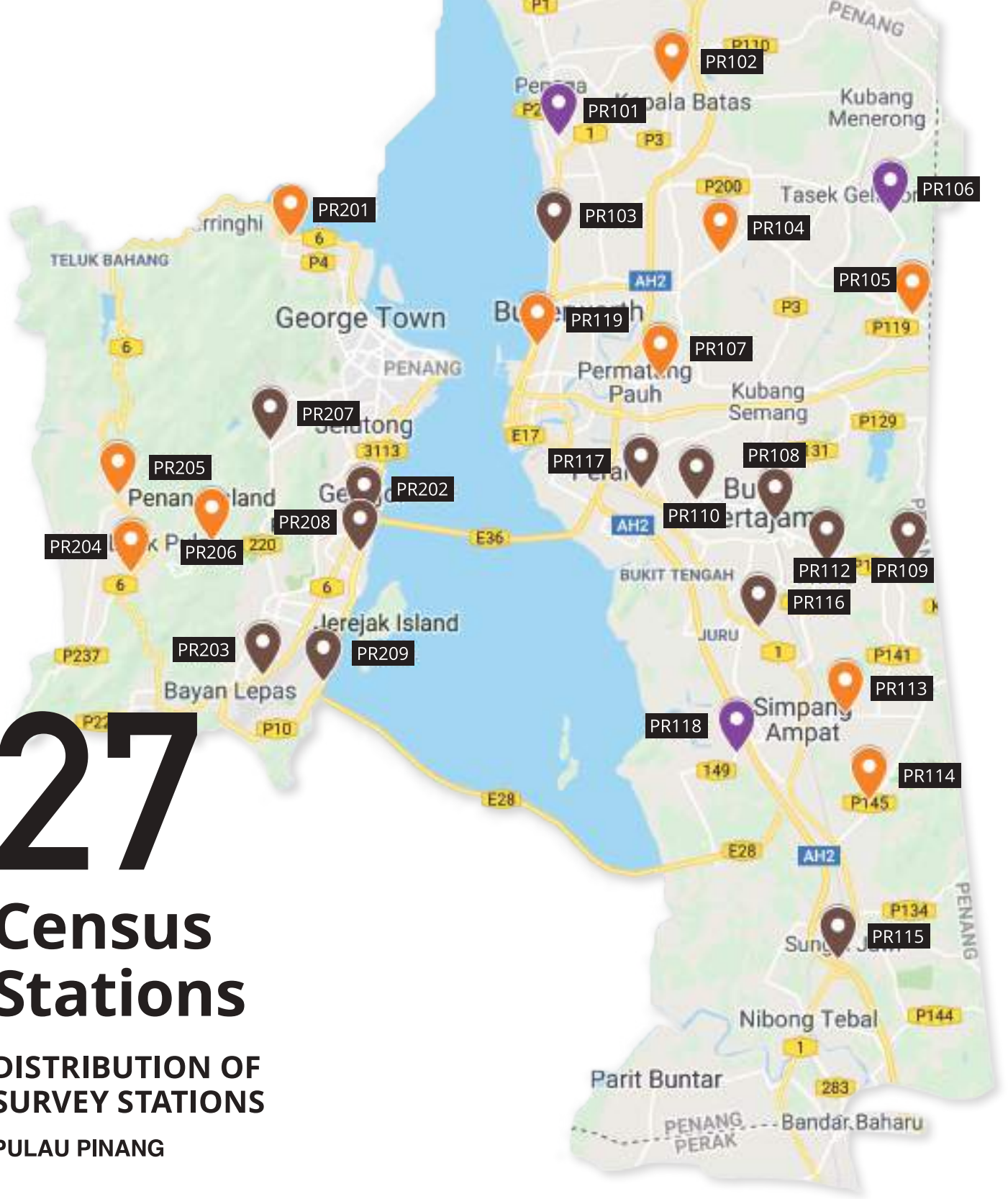
27 Census Stations

DISTRIBUTION OF SURVEY STATIONS

PULAU PINANG

		
TYPE 0	TYPE 2	TYPE 3
13	11	3

Seberang Perai Utara	 1	 3	 1
Seberang Perai Tengah	 6	 2	 1
Seberang Perai Selatan	 1	 2	 1
Barat Daya	 2	 3	 0
Timur Laut	 3	 1	 0



Seberang Perai Utara

Census Station Number	Survey Type	Route Number	KM	Description Of Location	GPS Coordinate (WGS84) (Latitude, Longitude)	Type Of Carriageway
PR101	3	P1		Titi Mukim - Permatang Bendahari	5.5033720 100.3843400	T1-1
PR102	2	1		Butterworth - Kepala Batas - Sg Petani	5.5228330 100.4272500	T1-1
PR103	0	1		Butterworth - B. Ajam - T. Ayer Tawar	5.4626080 100.3826010	T1-1
PR104	2	P198		Butterworth - Sungai Dua - Lahar Yoi	5.4588190 100.4457660	T1-1
PR105	2	P118		Ara Kuda - Lunas	5.4355040 100.5187230	T1-1

Seberang Perai Tengah

PR106	3	P119		Butterworth - Kubang Ulu - Ara Kuda	5.4739640 100.5102410	T1-1
PR107	2	P188		Butterworth - P. Pauh - K. Semang	5.4121880 100.4229160	T1-1
PR108	0	P12		Butterworth - Bukit Mertajam - Kulim	5.3577980 100.4664980	T1-1
PR109	0	P13		Butterworth - Bukit Mertajam - Kulim	5.3415200 100.5171440	T1-1
PR110	0	P14		Butterworth - Bukit Mertajam	5.3656000 100.4366680	T3-2
PR112	0	P139		From junction to Route 1	5.3420281 100.4861380	T1-1
PR116	0	1		Butterworth - Taiping	5.3174891 100.4601451	T1-1
PR117	0	1		Butterworth - Taiping	5.3698230 100.4155110	K3-3
PR119	2	1		Jalan Kampung Gajah	5.4239780 100.3762970	T1-1

Seberang Perai Selatan

PR113	2	P124		Butterworth - Simpang Empat - Tasek	5.2848310 100.4931490	T2-2
PR114	2	P145		Butterworth - Tasek - Val D'or	5.2519490 100.5022510	T1-1
PR115	0	1		Butterworth - Taiping	5.1918400 100.4903260	T1-1
PR118	3	149		Jalan Batu Kawan	5.2699060 100.4519350	K3-3

Timur Laut

PR201	2	6		George Town - Telok Bahang	5.4652170 100.2823790	K2-2
PR202	0	6		George Town - Bayan Lepas - Gelugor	5.3586230 100.3102880	K3-3
PR207	0	220		Paya Terubong - Ayer Hitam	5.3882500 100.2746944	T1-1
PR208	0	3113		Lebuhraya Lim Chong Eu	5.3459790 100.3087140	K3-3

Barat Daya

PR203	0	6		George Town - Bayan Lepas - Gelugor	5.2993600 100.2718180	K3-3
PR204	2	6		George Town - B. Pulau - T. Kumbar	5.3381270 100.2216800	T1-1
PR205	2	6		George Town - T. Bahang - Balik Pulau	5.3675100 100.2169800	T1-1
PR206	2	P14		Jalan Tun Sardon	5.3500440 100.2524000	T1-1
PR209	0	3113		Lebuhraya Bayan Lepas	5.2970090 100.2948590	K3-3

Seberang Perai Utara

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
PR101	7,133	860	1800 - 1900	43.4	5.5	2.5	0.4	0.9	47.4	A	961	1836	2084
PR102	19,600	1,758	1800 - 1900	45.3	12.0	3.6	0.7	0.8	37.6	E	2116	2346	-
PR103	40,759	3,574	1800 - 1900	57.0	4.6	1.8	0.4	0.6	35.6	F	3904	2453	R
PR104	30,137	3,700	0700 - 0800	44.2	7.4	4.7	1.5	0.6	41.5	F	4396	2017	R
PR105	10,796	1,357	1800 - 1900	54.6	8.8	8.1	3.3	0.7	24.5	D	1750	1972	-

Seberang Perai Tengah

PR106	6,416	724	1700 - 1800	49.5	11.4	12.0	1.6	0.2	25.3	A	963	1698	-
PR107	18,128	2,279	0700 - 0800	42.2	7.7	3.6	2.6	0.3	43.7	F	2707	2052	R
PR108	62,455	6,640	2100 - 2200	49.6	11.0	2.7	0.5	0.1	36.1	F	7723	2628	R
PR109	38,309	4,564	0700 - 0800	58.4	6.6	4.0	1.3	0.2	29.5	F	5277	2388	R
PR110	49,361	3,848	1800 - 1900	60.5	5.9	2.4	0.5	0.4	30.3	A	4283	9680	-
PR112	26,997	2,312	1800 - 1900	55.1	5.4	3.0	0.3	0.2	36.0	F	2566	2136	R
PR116	51,562	4,679	0700 - 0800	62.6	6.6	5.0	1.3	0.6	23.9	F	5516	2253	R
PR117	78,007	6,580	1800 - 1900	65.7	0.5	1.3	0.1	1.0	31.4	A	6884	11720	-
PR119	15,055	1,271	1700 - 1800	72.3	2.2	1.0	0.1	0.5	23.9	A	1334	2480	NA

Seberang Perai Selatan

PR113	27,165	2,435	1900 - 2000	50.4	5.8	7.4	2.9	0.3	33.3	A	2997	6517	2079
PR114	12,616	1,175	1800 - 1900	44.5	10.9	12.1	10.1	0.3	22.0	F	1763	1690	R
PR115	41,460	3,306	0800 - 0900	60.6	8.8	7.9	2.1	0.5	20.1	F	4164	1798	R
PR118	29,339	2,540	1900 - 2000	63.2	0.9	2.3	0.2	1.4	32.1	A	2728	11558	NA

Timur Laut

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
PR201	29,350	2,232	0800 - 0900	70.2	1.8	2.4	0.4	1.5	23.8	A	2433	7678	-
PR202	53,676	4,664	1700 - 1800	60.0	0.4	1.1	0.0	0.5	37.9	A	4811	10622	-
PR207	32,945	2,692	1800 - 1900	58.0	2.2	2.7	0.3	1.1	35.7	F	2936	2125	R
PR208	107,185	10,009	0700 - 0800	73.8	1.2	2.7	0.3	1.6	20.4	E	10915	11468	2022

Barat Daya

PR203	56,917	4,809	1800 - 1900	69.4	0.6	1.4	0.1	1.2	27.2	A	5070	11211	2072
PR204	15,052	1,932	0700 - 0800	42.2	6.1	4.1	0.4	2.0	45.3	F	2260	2051	R
PR205	11,808	1,368	1900 - 2000	45.9	4.4	3.8	0.3	1.2	44.5	C	1547	2074	2030
PR206	13,779	1,510	1700 - 1800	51.5	4.2	2.3	0.4	0.8	40.7	C	1665	2135	-
PR209	70,962	7,147	1700 - 1800	65.6	1.4	3.9	0.5	2.6	26.0	C	8109	10769	-

Seberang Perai Utara

Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
PR101	7,187	6,652	7,650	7,432	8,681	6,688	7,792	8,014	8,070	7,133	0.85	0.08
PR102	20,746	20,478	20,738	21,200	19,453	18,230	18,396	19,497	19,505	19,600	-1.00	0.37
PR103	42,788	33,928	31,303	31,130	34,966	34,613	34,619	37,079	36,708	40,759	0.77	0.04
PR104	24,469	25,815	24,670	26,257	27,494	27,980	29,816	31,851	32,771	30,137	3.17	0.85
PR105	12,205	12,757	11,339	12,690	13,996	10,710	12,916	13,055	13,150	10,796	-0.24	0.00

Seberang Perai Tengah

PR106	10,757	12,293	13,530	13,716	9,564	10,955	7,707	7,261	6,854	6,416	-8.15	0.63
PR107	10,353	10,553	9,921	12,143	13,952	22,437	22,244	30,395	34,675	18,128	12.88	0.55
PR108	30,706	46,409	45,483	43,724	49,981	44,252	52,455	57,921	62,838	62,455	6.15	0.82
PR109	24,609	45,895	45,001	52,655	52,986	49,173	42,627	39,814	41,350	38,309	1.17	-0.02
PR110	52,129	49,765	41,678	44,632	43,738	37,662	44,666	48,446	47,623	49,361	-0.12	0.00
PR112	23,488	36,876	33,210	39,050	39,358	41,603	46,215	50,312	53,054	26,997	3.90	0.19
PR116	56,349	60,230	56,932	64,993	48,588	65,716	59,320	52,095	52,205	51,562	-1.34	0.15
PR117	95,869	102,391	117,380	132,813	161,699	128,962	112,635	117,260	123,123	78,007	-0.78	0.00
PR119	NA	NA	NA	NA	NA	NA	NA	NA	NA	15,055	NA	NA

Seberang Perai Selatan

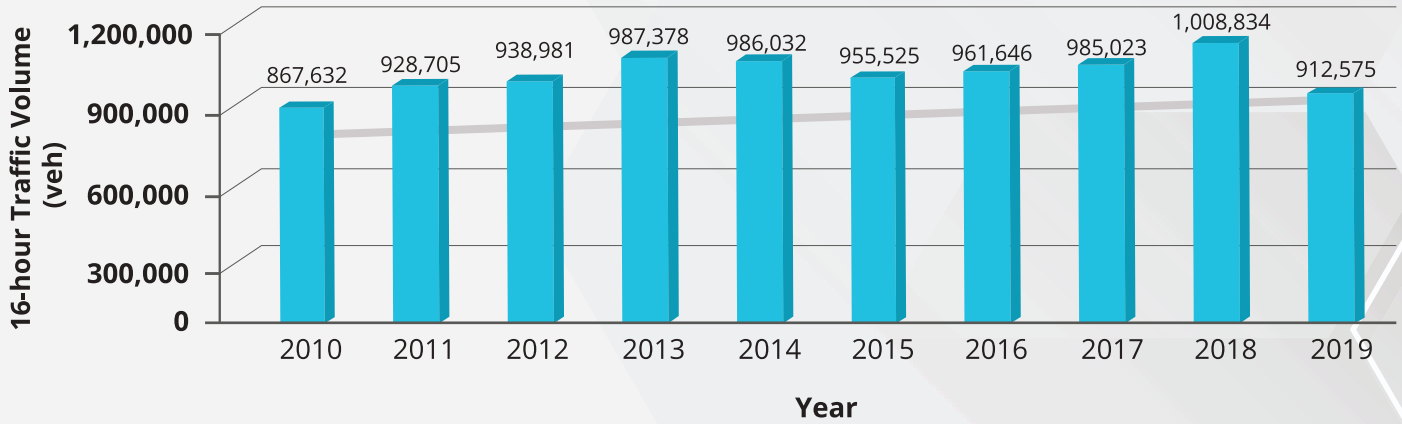
PR113	28,563	19,887	21,811	24,090	27,542	20,751	24,341	22,468	23,265	27,165	1.30	0.08
PR114	9,898	14,544	13,017	9,923	10,279	13,015	11,906	12,998	13,209	12,616	0.58	0.00
PR115	37,548	39,617	43,137	44,684	44,249	42,148	41,309	43,569	44,628	41,460	0.90	0.22
PR118	NA	NA	NA	NA	NA	NA	NA	NA	NA	29,339	NA	NA

Timur Laut

Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
PR201	27,334	26,085	28,442	27,106	28,419	24,774	23,255	22,006	22,365	29,350	-1.40	0.14
PR202	81,717	82,488	91,517	81,583	72,034	67,613	69,456	64,047	62,766	53,676	-4.86	0.81
PR207	27,213	29,440	32,807	31,036	27,676	32,022	32,025	33,282	34,972	32,945	1.96	0.53
PR208	99,652	107,749	100,205	100,571	92,251	97,112	125,126	117,426	115,782	107,185	1.61	0.26

Barat Daya

PR203	50,776	50,950	59,900	62,207	63,049	62,464	56,678	61,819	64,144	56,917	1.52	0.26
PR204	8,281	8,693	10,637	11,519	13,674	18,614	16,837	21,626	24,310	15,052	10.65	0.61
PR205	12,283	9,725	9,846	11,296	9,487	10,843	13,214	13,618	13,876	11,808	2.64	0.33
PR206	16,634	12,835	9,229	12,942	12,417	12,493	11,027	11,547	11,304	13,779	-1.18	0.08
PR209	60,108	62,253	60,415	63,543	60,502	54,699	45,068	47,619	46,286	70,962	-1.76	0.08



$$y = 916167e^{0.007x} \quad | \quad R^2 = 0.22$$

Normal Growth = 0.70%

Yearly 16-Hour Traffic Volume (2010-2019) & Normal Traffic Growth with Exponential Trendline for the Year 2019 in Pulau Pinang

**9.54%
DECREASE**

There are 27 census stations in Pulau Pinang. The 16-hour traffic volume exhibits a gradual increase from the year 2010 to 2018. There is a decrease in traffic of 9.54% which is equivalent to 96,259 vehicles in year 2019 compared to year 2018.



For the year 2019, the observed traffic growth rate for the state of Pulau Pinang is 0.70%. The basis of traffic growth rate record is to be used as a projection indicator of subsequent traffic growth rate for road forethought as well as for the expansion of current and new roads in Pulau Pinang.



PERAK

*Jambatan Sultan Abdul Jalil
Jalan Kuala Kangsar - Ipoh*

60

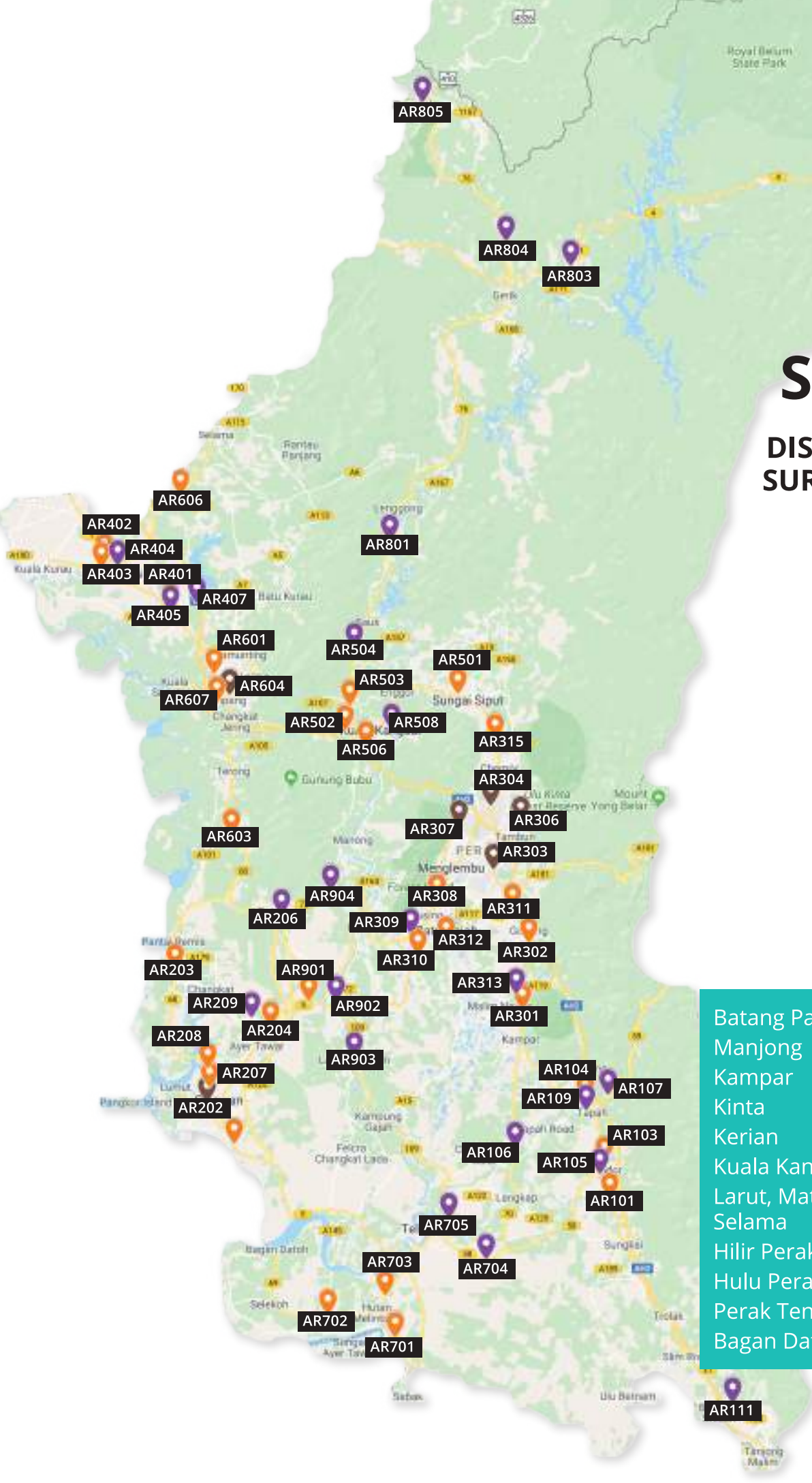
Census Stations

DISTRIBUTION OF SURVEY STATIONS

PERAK



Batang Padang	0	4	5
Manjong	1	5	2
Kampar	0	2	1
Kinta	4	5	1
Kerian	0	3	3
Kuala Kangsar	0	4	2
Larut, Matang, Selama	1	4	0
Hilir Perak	0	0	2
Hulu Perak	0	0	4
Perak Tengah	0	1	3
Bagan Datuk	0	3	0



Batang Padang

Census Station Number	Survey Type	Route Number	KM	Description Of Location	GPS Coordinate (WGS84) (Latitude, Longitude)	Type Of Carriageway
AR101	2	1		Ipoh - Tanjung Malim	4.0666530 101.2888110	T1-1
AR102	2	1		Ipoh - Tanjung Malim	4.0661000 101.2889400	T2-2
AR103	2	1		Ipoh - Tapah - Bidor	4.1210480 101.2804260	T1-1
AR104	2	1		Ipoh - Tapah	4.2141900 101.2513500	T1-1
AR105	3	58		Ipoh - Bidor - Telok Anson	4.1020940 101.2727970	T1-1
AR106	3	70		Ipoh - Kampar - Changkat Jering	4.1424720 101.1454440	T1-1
AR107	3	59		Tapah - Cameron Highlands	4.2219090 101.2855610	T1-1
AR109	3	A10		Tapah - Kampong Changkat Pantai	4.1986390 101.2530560	T1-1
AR111	3	193		Behrang Stesen - Tanjung Malim	3.7571181 101.4733325	K2-2

Manjong

AR201	2	5		Ipoh/Sitiawan - Kayan	4.1474000 100.7217000	T1-1
AR202	0	18		Ipoh - Lumut	4.2110090 100.6797560	K2-2
AR203	2	60		Damar Laut - Pantai Remis	4.4106000 100.6321000	T1-1
AR204	2	5		Ipoh - Lumut	4.3245000 100.7757000	K2-2
AR206	3	73		Tanjung Belanja - Beruas	4.4925280 100.7925000	T1-1
AR207	2	100		Ipoh - Lumut	4.2332000 100.6840000	T1-1
AR208	2	60		Pantai Remis - Kg Baru	4.2609570 100.6815870	T1-1
AR209	3	A12		Air Tawar - Pantai Remis	4.3382450 100.7470090	T1-1

Kampar

AR301	2	1		Ipoh - Kampar	4.3508000 101.1565480	K2-2
AR302	2	1		Ipoh - Kampar	4.4500297 101.1660655	T2-2
AR313	3	A114		Kuala Dipang - Malim Nawar	4.3735000 101.1474300	T2-2

Kinta

AR303	0	1		Ipoh - Gopeng	4.5619270 101.1123780	K2-2
AR304	0	1		Ipoh - Kuala Kangsar	4.6565660 101.1088160	K2-2
AR305	2	1		Ipoh - Kuala Kangsar	4.7565397 101.1160351	K2-2
AR306	0	A13		Ipoh - Tanjung Rambutan	4.6323436 101.1540097	K2-2
AR307	0	A1		Ipoh - Jelapang	4.6274420 101.0606160	K3-3
AR308	2	5		Ipoh - Lumut	4.5168330 101.0270620	T1-1
AR309	3	73		Ipoh - Siputeh	4.4643500 100.9880300	T1-1
AR310	2	5		Ipoh - Lumut	4.4331400 100.9984800	K2-2
AR311	2	A8		Ipoh - Batu Gajah	4.5012750 101.1414950	K2-2
AR312	2	A15		Batu Gajah - Tanjung Tualang	4.4525210 101.0407790	T1-1

Kerian

Census Station Number	Survey Type	Route Number	KM	Description Of Location	GPS Coordinate (WGS84) (Latitude, Longitude)	Type Of Carriageway
AR401	2	1		Ipoh - Butterworth	4.9545640 100.6248090	T1-1
AR402	2	1		Ipoh - Butterworth	5.0296420 100.5254060	K2-2
AR403	2	75		Bagan Serai - Kuala Kurau	5.0161000 100.5205000	T1-1
AR404	3	147		Bagan Serai - Selama	5.0190030 100.5455010	T1-1
AR405	3	A100		Semanggol - Kuala Kurau	4.9505050 100.6253740	T1-1
AR407	3	A4		Gunung Semanggol - Taiping	4.9617000 100.6654000	T1-1

Kuala Kangsar

AR501	2	1		Ipoh - Kuala Kangsar	4.8251950 101.0594100	K2-2
AR502	2	1		Ipoh - Kuala Kangsar - Chgkt Jering	4.7712290 100.8885300	T1-1
AR503	2	76		Ipoh - Kuala Kangsar - Lenggong	4.8080280 100.8956390	K2-2
AR504	3	76		Ipoh - Kuala Kangsar - Grik	4.8940690 100.9023740	T2-2
AR506	2	A3		Ipoh - Kuala Kangsar - Kenas RPA 4	4.7461940 100.9202780	T1-1
AR508	3	A164		Simpang Sayong - Tg. Belanja	4.7719070 100.9592210	T1-1

Larut, Matang, Selama

AR601	2	1		Ipoh - Butterworth	4.8550000 100.6909000	K2-2
AR603	2	60		Sitiawan - Taiping	4.6140630 100.7172160	T1-1
AR604	0	74		Kuala Sepetang - Taiping	4.8240000 100.7142000	K2-2
AR606	2	A111		Kuala Sepetang - Taiping	5.1245400 100.6398200	T1-1
AR607	2	74		Kuala Sepetang - Taiping	4.8137330 100.6947220	T1-1

Bagan Datuk

AR701	2	5		Ipoh - Telok Intan - Sabak	3.8557240 100.9650270	K2-2
AR702	2	69		Ipoh - Simpang Empat - Bagan Datuk	3.8901080 100.8621980	T1-1
AR703	2	5		Ipoh - Telok Intan - Simpang Empat	3.9188000 100.9495000	T1-1

Hilir Perak

AR704	3	58		Ipoh - Changkat Jong - Telok Intan	3.9744722 101.1011389	T1-1
AR705	3	109		Jalan Teluk Intan	4.0350800 101.0459140	T1-1



Hulu Perak

Census Station Number	Survey Type	Route Number	KM	Description Of Location	GPS Coordinate (WGS84) (Latitude, Longitude)	Type Of Carriageway
AR801	3	76		Kuala Kangsar - Baling	5.0574000 100.9558000	T1-1
AR803	3	4		Lebuhraya Timur - Barat	5.4695088 101.2291437	T1-1
AR804	3	76		Ipoh - Grik - Kroh	5.5061111 101.1317500	T1-1
AR805	3	77		Pengkalan Hulu - Bentong	5.7162890 101.0053020	T1-1

Perak Tengah

AR901	2	5		Ipoh - Pusing - Bota Kiri - Sitiawan	4.3628650 100.8333890	K2-2
AR902	3	72		Tanjong Belanja - Kampong Bota Kiri	4.3626310 100.8748160	T1-1
AR903	3	109		Parit - Kg. Gajah	4.2778890 100.9023740	T1-1
AR904	3	A3		Ipoh - Kuala Kangsar - Kg Buloh Akar	4.5296180 100.8661880	T1-1

Batang Padang

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
AR101	17,504	1,810	1700 - 1800	72.5	7.9	4.0	3.0	0.3	12.3	E	2181	2427	2029
AR102	10,420	858	1600 - 1700	55.5	11.9	10.5	7.4	0.9	13.7	A	1238	6732	-
AR103	13,278	1,238	1700 - 1800	52.8	10.1	6.5	5.6	0.6	24.4	D	1637	1963	-
AR104	14,608	1,274	1700 - 1800	60.2	8.4	6.0	6.5	0.8	18.2	C	1680	2225	-
AR105	6,366	643	0700 - 0800	45.8	15.5	7.4	4.6	0.8	25.8	A	885	1860	-
AR106	6,197	560	1700 - 1800	58.3	10.6	11.3	4.0	1.0	14.8	A	771	1805	-
AR107	9,183	889	1500 - 1600	51.4	9.4	5.8	1.4	0.6	31.3	A	1087	1947	2034
AR109	9,258	1,032	0700 - 0800	63.1	8.1	3.8	0.9	0.6	23.5	A	1205	2659	2050
AR111	4,682	970	0700 - 0800	57.5	1.7	4.4	0.6	2.2	33.6	A	1104	7466	N/A

Manjong

AR201	17,829	1,534	1700 - 1800	62.6	5.9	6.6	3.2	3.6	18.1	E	1984	2173	2023
AR202	39,340	3,055	1800 - 1900	71.4	3.4	5.8	1.8	2.8	14.8	A	3706	7246	-
AR203	11,791	1,080	1700 - 1800	54.9	13.6	9.5	6.0	0.6	15.3	B	1525	2410	2054
AR204	25,248	2,085	1700 - 1800	71.3	2.2	6.0	1.5	3.8	15.2	A	2537	6475	2076
AR206	4,808	591	0700 - 0800	41.1	7.6	8.2	3.8	0.4	38.9	A	758	2492	-
AR207	17,237	1,415	1700 - 1800	61.9	13.9	11.8	1.4	3.9	7.1	E	2012	2152	2021
AR208	15,017	1,252	1700 - 1800	63.4	8.9	9.0	2.2	5.8	10.7	C	1734	2224	2028
AR209	6,670	631	1200 - 1300	53.5	15.4	12.3	4.2	0.8	13.8	A	908	1886	2083

Kampar

AR301	20,707	1,782	1700 - 1800	72.1	2.6	4.7	1.4	3.0	16.2	A	2111	6964	-
AR302	22,036	1,855	1700 - 1800	72.0	1.7	5.0	1.1	3.6	16.6	A	2200	7293	2086
AR313	7,604	726	1700 - 1800	62.9	8.6	2.3	0.2	0.2	25.8	A	819	7009	-

Kinta

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
AR303	53,711	4,052	1700 - 1800	77.6	1.6	3.4	0.4	1.5	15.5	A	4480	7596	-
AR304	51,083	4,211	0700 - 0800	65.6	5.3	6.3	1.7	2.6	18.7	C	5186	7239	-
AR305	23,622	2,312	1700 - 1800	59.0	7.1	8.2	3.0	3.8	18.9	A	3072	6962	-
AR306	24,116	2,056	1700 - 1800	66.4	1.8	3.0	0.1	0.6	28.1	A	2215	7716	-
AR307	33,817	2,717	1800 - 1900	68.9	1.9	3.0	0.5	1.4	24.3	A	2993	10296	-
AR308	20,584	1,630	1700 - 1800	57.0	12.9	14.9	2.4	5.8	7.0	F	2470	2207	R
AR309	6,524	602	1700 - 1800	60.9	4.4	1.0	0.4	0.2	33.1	A	644	2123	-
AR310	21,496	1,944	1800 - 1900	57.2	14.1	8.0	5.4	0.5	14.8	A	2680	6953	2045
AR311	14,522	1,218	1700 - 1800	68.7	2.4	5.2	2.0	3.4	18.3	A	1473	7235	2037
AR312	15,040	1,325	1800 - 1900	51.6	13.2	19.5	1.2	3.8	10.7	E	2019	2092	2020

Kerian

AR401	14,741	1,266	1700 - 1800	64.2	4.9	8.5	2.2	3.8	16.4	C	1640	2202	2049
AR402	22,019	1,820	1700 - 1800	53.9	9.7	11.9	3.0	4.8	16.7	A	2605	6015	-
AR403	16,028	1,488	0700 - 0800	47.5	7.0	3.4	0.5	0.4	41.3	B	1692	2688	2031
AR404	7,487	820	0700 - 0800	47.3	9.2	6.2	0.8	0.4	36.1	A	991	1722	2059
AR405	7,415	832	0700 - 0800	39.4	11.7	12.6	0.8	3.1	32.4	A	1151	2115	2040
AR407	6,720	820	0700 - 0800	56.5	7.7	3.5	0.8	0.6	30.8	A	949	2109	2078

Kuala Kangsar

AR501	22,077	1,907	0700 - 0800	59.9	5.0	6.6	1.9	3.5	23.1	A	2399	6640	2121
AR502	14,374	1,223	1600 - 1700	58.2	6.3	6.1	7.2	0.3	21.8	C	1596	2070	2032
AR503	11,601	964	1700 - 1800	63.0	8.0	10.5	1.3	2.9	14.3	A	1274	6694	2065
AR504	7,250	584	1600 - 1700	62.6	12.8	6.5	4.8	1.0	12.3	A	784	7124	2241
AR506	10,363	850	1700 - 1800	60.6	4.7	5.6	0.4	1.3	28.0	A	991	2035	2057
AR508	11,280	1,016	1100 - 1200	49.0	6.7	4.3	2.1	0.3	37.6	A	1198	2073	2030

Larut, Matang, Selama

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
AR601	20,186	1,727	1800 - 1900	58.1	1.9	5.5	1.3	3.8	29.4	A	2079	7017	2032
AR603	9,677	783	1700 - 1800	38.5	10.2	14.4	8.8	0.5	27.5	B	1178	1787	-
AR604	40,538	3,187	1800 - 1900	56.9	9.5	9.7	0.7	2.1	21.2	B	4128	6402	2063
AR606	10,787	1,367	0700 - 0800	50.7	6.8	7.0	1.2	0.8	33.6	B	1658	2518	2038
AR607	15,775	1,353	1800 - 1900	40.8	12.2	12.6	1.0	2.9	30.4	E	1880	1899	2019

Bagan Datuk

AR701	6,627	566	1700 - 1800	68.4	6.0	10.6	2.7	7.3	5.1	A	803	6501	-
AR702	10,935	1,146	1700 - 1800	57.0	9.5	4.8	2.0	0.6	26.2	B	1396	2060	2058
AR703	18,285	1,483	1700 - 1800	67.8	4.0	6.3	1.7	3.8	16.4	D	1845	2254	-

Hilir Perak

AR704	11,767	1,061	1800 - 1900	58.1	11.4	9.5	5.5	1.2	14.3	C	1475	2120	2036
AR705	9,434	795	0700 - 0800	60.9	12.5	8.4	6.6	0.6	10.9	A	1110	2372	2032

Hulu Perak

AR801	2,952	521	1600 - 1700	66.5	13.7	7.6	3.1	1.1	8.1	A	696	2254	2090
AR803	4,164	355	0700 - 0800	58.3	10.8	8.7	9.4	0.9	12.0	A	512	2071	2084
AR804	5,961	578	1600 - 1700	49.3	8.3	30	0.7	1.2	37.5	A	674	2215	-
AR805	6,606	840	1700 - 1800	41.1	9.2	1.7	0.5	0.5	47.0	A	955	2209	2103

Perak Tengah

AR901	24,146	2,382	0700 - 0800	59.8	14.8	8.0	3.0	0.4	14.0	A	3184	7107	2034
AR902	4,924	467	0700 - 0800	44.5	12.6	10.1	2.6	0.0	30.2	A	621	2485	2056
AR903	6,595	597	0900 - 1000	54.9	12.7	8.6	4.5	0.5	18.8	A	809	1948	2037
AR904	1,685	161	1800 - 1900	37.8	17.7	10.4	4.3	1.5	28.1	A	234	2407	2253

Batang Padang

Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
AR102	15,323	14,039	14,431	15,328	16,501	16,736	15,187	14,913	15,068	17,504	1.12	0.24
AR102	14,454	13,191	14,225	13,812	11,147	11,109	14,530	12,676	12,695	10,420	-2.21	0.31
AR103	14,966	15,057	14,994	15,341	14,832	14,400	14,410	13,748	13,651	13,278	-1.46	0.81
AR104	14,944	15,991	15,253	15,199	15,320	14,427	15,023	15,095	15,050	14,608	-0.47	0.26
AR105	8,923	7,368	7,099	6,687	6,232	6,898	6,650	6,982	6,752	6,366	-2.21	0.46
AR106	7,427	7,841	7,565	7,310	7,240	7,804	6,382	6,531	6,446	6,197	-2.47	0.68
AR107	6,244	6,473	7,153	7,796	7,024	8,107	8,862	8,210	8,557	9,183	4.03	0.85
AR109	7,297	7,644	8,292	7,978	9,150	10,594	9,472	8,750	9,059	9,258	2.58	0.43
AR111	NA	NA	NA	NA	NA	NA	NA	NA	NA	4,682	NA	NA

Manjong

AR201	14,342	14,331	14,975	15,077	15,254	16,457	17,420	16,091	16,491	17,829	2.31	0.81
AR202	43,896	47,749	48,757	46,346	46,749	46,926	46,005	46,567	46,744	39,340	-0.84	0.17
AR203	10,767	11,160	10,273	11,052	10,788	11,942	11,121	11,838	11,991	11,791	1.30	0.57
AR204	22,389	23,758	25,283	25,942	23,834	26,494	25,939	27,384	28,011	25,248	1.66	0.52
AR206	6,552	6,915	6,967	6,786	6,823	7,554	6,247	5,436	5,403	4,808	-3.58	0.51
AR207	14,620	15,866	15,647	17,179	17,027	18,977	18,448	19,305	20,156	17,237	2.75	0.63
AR208	11,780	11,663	12,445	13,049	12,921	14,811	14,145	13,848	14,306	15,017	2.74	0.82
AR209	6,254	6,227	6,214	6,765	6,201	6,577	6,882	6,795	6,930	6,670	1.14	0.57

Kampar

AR301	31,022	30,311	27,497	28,520	27,126	30,592	24,654	29,911	30,321	20,707	-2.14	0.24
AR302	23,518	19,485	25,951	25,176	24,263	26,103	28,239	28,108	28,827	22,036	1.80	0.20
AR313	8,350	9,994	12,777	14,818	7,422	7,013	6,498	6,796	6,537	7,604	-5.76	0.27



Kinta

Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
AR303	84,135	73,487	85,819	77,195	78,210	78,136	77,483	87,006	87,711	53,711	-1.65	0.09
AR304	80,595	70,470	82,923	73,024	64,750	76,894	81,402	73,829	74,715	51,083	-2.29	0.21
AR305	26,251	29,168	39,267	29,117	25,116	25,904	22,594	22,113	22,476	23,622	-3.86	0.38
AR306	41,786	23,758	38,194	48,879	41,249	42,366	41,382	34,601	34,427	24,116	-4.02	0.36
AR307	34,204	38,155	51,996	49,227	60,125	62,591	47,598	37,986	40,508	33,817	-1.61	0.03
AR308	24,336	46,163	27,970	28,020	25,433	29,775	29,482	28,334	29,351	20,584	0.49	0.01
AR309	6,207	22,253	6,303	6,209	5,734	5,303	4,851	6,489	6,346	6,524	-0.72	0.04
AR310	15,378	19,306	15,522	14,681	19,823	18,624	21,533	20,474	20,916	21,496	3.66	0.59
AR311	8,087	7,280	8,638	10,312	8,614	10,475	13,546	13,119	21,039	14,522	9.03	0.69
AR312	11,750	8,286	13,356	13,361	12,964	11,647	12,463	18,572	19,099	15,040	4.14	0.48

Kerian

AR401	14,777	15,143	16,130	16,268	15,728	16,248	17,169	16,265	16,554	14,741	0.51	0.09
AR402	17,972	16,679	21,074	21,116	21,245	17,641	16,178	15,233	15,096	22,019	-0.90	0.02
AR403	12,287	11,724	11,629	11,235	10,735	15,748	14,466	14,653	14,956	16,028	3.88	0.63
AR404	7,315	6,760	6,583	7,028	6,692	7,089	7,098	7,828	7,936	7,487	1.39	0.45
AR405	5,932	5,746	5,550	6,522	6,552	7,198	6,829	6,908	7,130	7,415	2.94	0.79
AR407	5,670	5,660	6,312	5,501	5,679	6,159	5,858	6,117	6,167	6,720	1.36	0.44

Kuala Kangsar

AR501	19,426	22,500	19,251	20,478	18,578	19,895	19,936	20,443	20,571	22,077	0.49	0.06
AR502	13,309	12,599	12,008	11,485	11,729	14,071	14,459	14,335	14,355	14,374	2.04	0.47
AR503	8,739	8,966	8,847	8,352	9,061	12,262	16,447	9,852	9,883	11,601	3.70	0.21
AR504	6,891	6,420	6,625	7,927	6,470	6,267	7,077	7,234	7,242	7,250	0.83	0.12
AR506	8,406	8,536	8,647	10,216	10,052	9,432	10,590	9,447	9,511	10,363	1.90	0.44
AR508	6,741	7,044	8,183	7,595	7,463	7,696	9,348	9,679	9,972	11,280	5.19	0.87

Larut, Matang, Selama

Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
AR601	14,128	3,379	19,410	20,588	19,881	20,664	21,327	19,058	20,270	20,186	9.58	0.27
AR603	10,270	18,646	12,586	12,938	12,531	12,949	13,919	9,227	9,449	9,677	-4.00	0.31
AR604	36,198	37,714	39,945	30,367	36,469	39,156	38,731	38,069	37,498	40,538	0.93	0.13
AR606	8,784	9,351	9,627	10,209	10,144	10,212	10,950	10,702	11,033	10,787	2.28	0.85
AR607	13,415	12,599	13,254	13,071	14,503	14,420	16,660	19,794	20,870	15,775	4.68	0.61

Bagan Datuk

AR701	10,286	10,192	10,047	10,554	10,962	10,885	19,096	9,808	10,104	6,627	-1.43	-0.02
AR702	9,629	10,132	10,241	10,872	10,581	10,433	10,234	10,544	10,733	10,935	0.91	0.52
AR703	25,365	25,004	28,465	25,489	25,865	27,249	33,024	26,218	26,687	18,285	-1.26	0.03

Hilir Perak

AR704	9,758	10,135	11,064	9,249	9,776	9,784	10,360	11,830	2,044	11,767	2.16	0.50
AR705	5,668	5,655	6,216	5,516	5,704	6,039	6,112	8,797	9,110	9,434	6.08	0.71

Hulu Perak

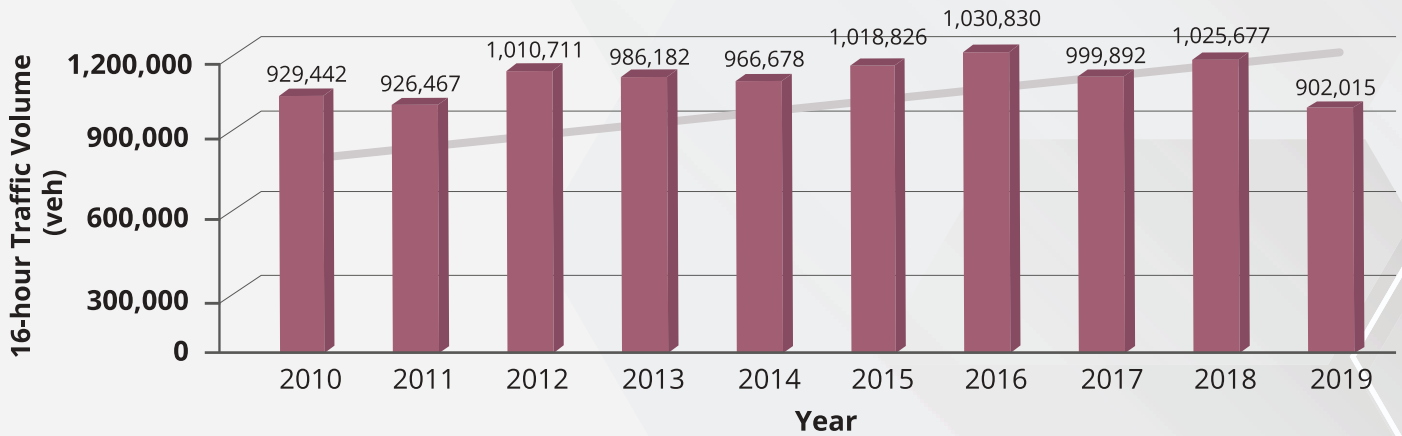
AR801	1,724	3,110	3,562	3,487	2,826	3,139	3,017	2,798	2,872	2,952	1.66	0.06
AR803	3,337	3,148	3,944	3,796	3,636	3,293	3,818	3,923	4,028	4,164	2.19	0.50
AR804	8,234	5,586	5,869	6,306	7,114	6,492	6,043	5,760	5,754	5,961	-1.83	0.23
AR805	5,477	6,167	6,552	6,862	6,253	7,615	5,483	6,010	6,108	6,606	0.43	0.01

Perak Tengah

AR901	14,543	16,257	21,547	21,573	21,064	19,953	25,788	24,280	25,921	24,146	5.40	0.71
AR902	3,426	3,648	4,300	4,599	4,280	4,997	4,186	4,960	5,221	4,924	3.86	0.68
AR903	4,575	4,813	5,831	4,891	5,641	5,096	6,562	7,050	7,414	6,595	4.88	0.73
AR904	1,363	1,567	1,637	1,918	1,606	1,520	1,629	1,575	1,603	1,685	0.81	0.06

YEAR 16-HOUR TRAFFIC VOLUME (2010-2019)

Perak



$$y = 960124e^{0.0035x} \quad | \quad R^2 = 0.05$$

Normal Growth = 0.35%

Yearly 16-Hour Traffic Volume (2010-2019) & Normal Traffic Growth with Exponential Trendline for the Year 2019 in Perak

**12.06%
DECREASE**

There are 60 census stations in Perak. The pattern of 16-hour traffic volume has fluctuated since the year 2010 until the year 2018. Between the year 2018 and 2019, there is a difference between the traffic volumes by 12.06% which shows that the number of vehicles in the year 2019 has decreased by 123,662.



For the year 2019, the observed traffic growth rate for the state of Perak is 0.35%. The basis of traffic growth rate record is to be used as a projection indicator of subsequent traffic growth rate for road forethought as well as for the expansion of current and new roads in Perak.



SELANGOR

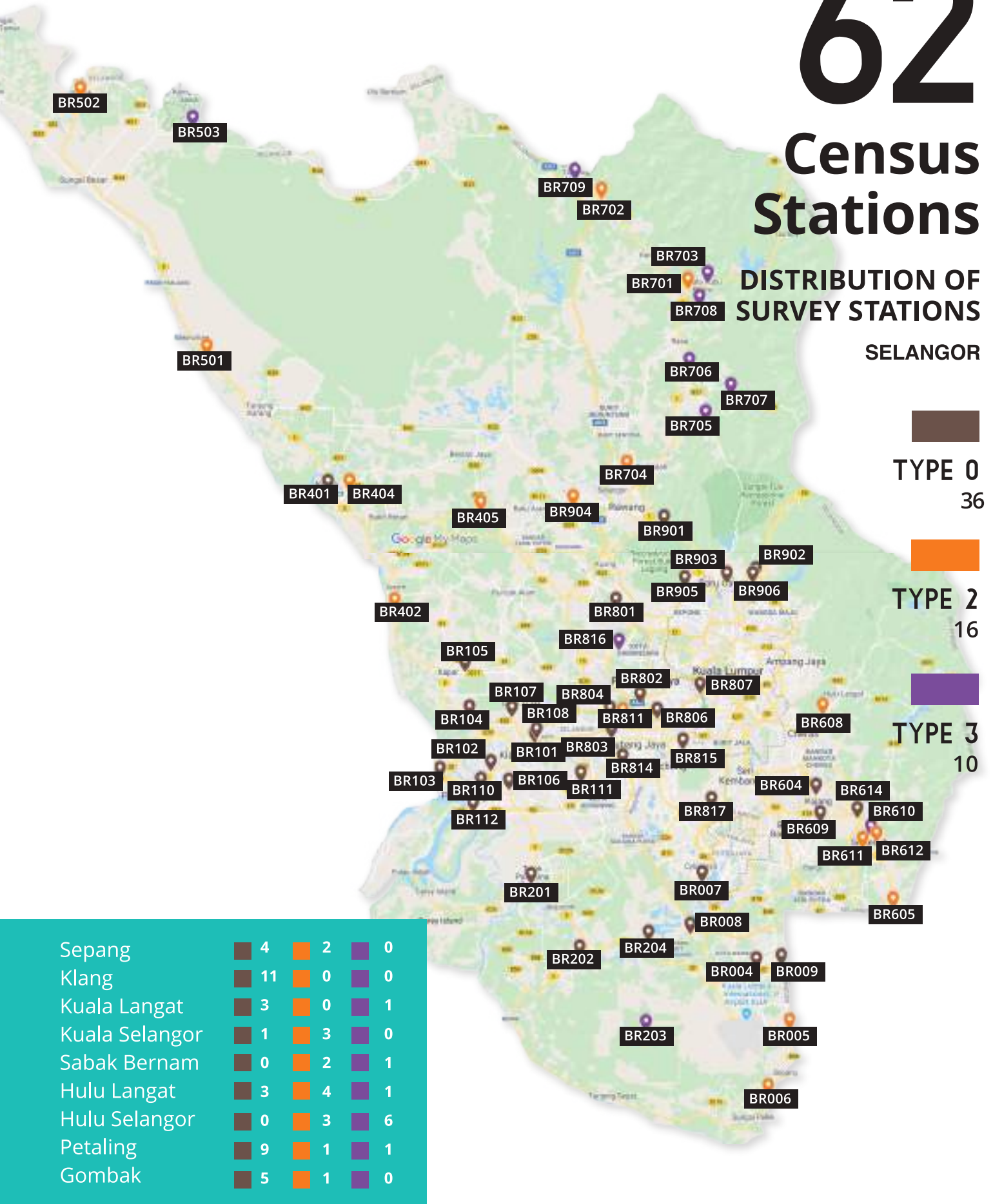
Jalan Rawang Bypass (FT37)

62

Census Stations

DISTRIBUTION OF SURVEY STATIONS

SELANGOR



Sepang

Census Station Number	Survey Type	Route Number	KM	Description Of Location	GPS Coordinate (WGS84) (Latitude, Longitude)	Type Of Carriageway
BR004	0	32		Salak Tinggi - Bukit Changgang - Banting (IKTBN Sepang)	2.8058889 101.7185000	K2-2
BR005	2	B48		Kuala Lumpur - Salak-Sepang (Labu Johnson)	2.7374980 101.7555130	T1-1
BR006	2	5		Klang - Sepang (Batu Dua)	2.6642778 101.7313889	T1-1
BR007	0	29		KLIA - Putrajaya (PICC)	2.9018620 101.6581500	K3-3
BR008	0	31		Jln Dengkil - Banting (Plantation)	2.8442040 101.6450650	T1-1
BR009	0	B48		Jalan Sepang - Kajang	2.8095556 101.7463333	T1-1

Klang

BR101	0	2		Kuala Lumpur-Klang	3.0571667 101.4710000	K3-3
BR102	0	2		Klang-Port Klang (Persiaran Raja Muda Musa)	3.0250424 101.4224285	K3-3
BR103	0	103		Jalan Pelabuhan - Near North Port	3.0180268 101.3653430	K2-2
BR104	0	5		Klang - Kuala Selangor	3.0866667 101.3980278	K3-3
BR105	0	3217		Klang - K. Selangor (P. Hamzah Alang)	3.1361366 101.3934234	T1-1
BR106	0	5		Klang - Telok Datok	3.0045278 101.4419444	K2-2
BR107	0	B1		Klang - Meru	3.0857600 101.4458350	K2-2
BR108	0	20		Jalan Pintas Selat Klang Utara (Persiaran Sultan Hishamuddin)	3.0615000 101.4734444	K3-3
BR110	0	3218		Langat Road -Pandamaran (Pandamaran Road)	3.0058190 101.4113140	T1-1
BR111	0	190		K. Lumpur - Puchong - Kg. Batu Enam (Jalan Bukit Kemuning)	3.0128910 101.5225620	T1-1
BR112	0	181		Lebuhraya Pulau Indah	2.9790730 101.4023160	K2-2

Kuala Langat

BR201	0	5		Klang - Telok Datok	2.8998300 101.4668000	K2-2
BR202	0	5		Klang - Telok Datok - Banting	2.8188611 101.5213611	K2-2
BR203	3	5		Klang - Morib - Batu Laut	2.7361400 101.5956040	T1-1
BR204	0	31		Klang - Telok Datok - Morib - Sepang	2.8355080 101.5978056	T1-1

Kuala Selangor

Census Station Number	Survey Type	Route Number	KM	Description Of Location	GPS Coordinate (WGS84) (Latitude, Longitude)	Type Of Carriageway
BR401	0	5		Klang - Kuala Selangor	3.3361940 101.2515000	K2-2
BR402	2	5		Klang - Kuala Selangor	3.2053610 101.3150830	T2-2
BR404	2	B33		K. Lumpur - Rawang - Kuala Selangor	3.3367728 101.2747813	T1-1
BR405	2	54		K. Lumpur - Kepong - Kuala Selangor	3.3134960 101.4178490	K2-2

Sabak Bernam

BR501	2	5		Klang - Sabak Bernam	3.4828225 101.1195994	K2-2
BR502	2	5		K. Lumpur - K. Selangor - Sabak Bernam	3.7621360 100.9823340	K2-2
BR503	3	B44		Jalan Sg. Panjang - Ulu Bernam - Tg. Malim	3.7307420 101.1043770	T1-1

Hulu Langat

BR604	0	1		Kuala Lumpur - Kajang - Telok Datok (Bt. 14 Jalan Cheras)	2.9991781 101.7850937	K2-2
BR605	2	1		Kuala Lumpur - Seremban	2.8721868 101.8705492	T1-1
BR608	2	B52		Kuala Lumpur - Cheras - Kampung Ulu Lui (Sg. Serai)	3.0887500 101.7923056	T1-1
BR609	0	B17		Kuala Lumpur - Kajang - Telok Datok (Jalan Reko)	2.9683056 101.7897500	K2-2
BR610	3	B19		Kuala Lumpur - Ulu Semenyih	2.9534167 101.8460556	T1-1
BR611	2	31		Kuala Lumpur - Semenyih - Bangi	2.9393990 101.8369410	T1-1
BR612	2	B34		Kuala Lumpur - Semenyih - Broga	2.9459499 101.8524121	K2-2
BR614	0	1		Kajang - Mantin	2.9733950 101.8311680	K2-2

Hulu Selangor

BR701	2	1		Kuala Lumpur - Kuala Kubu Bharu	3.5549547 101.6430331	T1-1
BR702	2	1		Kuala Lumpur - Tanjong Malim	3.6522903 101.5487330	T1-1
BR703	3	55		K. Lumpur - Kuala Kubu Bharu - Gap	3.5620003 101.6639969	T1-1
BR704	2	B56		Simpang Sg. Choh - Sg. Buaya	3.3565278 101.5763889	T2-1
BR705	3	B23		Hulu Gombak - Hulu Yam Bharu	3.4114810 101.6622049	T1-1
BR706	3	B113		Batang Kali - Hulu Yam	3.4679319 101.6439052	T1-1
BR707	3	B66		Jalan Hulu Kali - Genting Highland	3.4410000 101.6896110	T1-1
BR708	3	B55		Jalan Ampang Pechah - Kg. Bukit Raja	3.5367911 101.6552234	T1-1
BR709	3	B44		Jalan Hulu Bernam - Tanjong Malim	3.6734669 101.5200183	T1-1

Petaling

Census Station Number	Survey Type	Route Number	KM	Description Of Location	GPS Coordinate (WGS84) (Latitude, Longitude)	Type Of Carriageway
BR801	0	54		Kuala Lumpur - Kuala Selangor	3.2066310 101.5620247	T2-2
BR802	0	15		Jalan Subang - Sungai Buloh	3.1005030 101.5885100	K2-2
BR803	0	3214		Kuala Lumpur - Batu Tiga - Puchong	3.0622722 101.5569701	K3-3
BR804	0	B9		Batu Tiga - Damansara Road	3.0850632 101.5546295	K3-3
BR806	0	2		Kuala Lumpur - Klang	3.0837328 101.6075958	K3-3
BR807	0	2		Kuala Lumpur - Petaling Jaya	3.1119700 101.6561250	K3-3
BR811	2	3213		Jalan Batu Tiga	3.0832718 101.5690481	K2-2
BR814	0	B7		K. Lumpur - Puchong - Shah Alam	3.0319380 101.5693160	K3-3
BR815	0	207		K. Lumpur - Bukit Jalil - Puchong	3.0492330 101.6367390	K2-2
BR816	3	15		Jalan Subang - Sungai Buloh	3.1606340 101.5649190	K2-2
BR817	0	3215		Jalan Putra Permai	2.9845026 101.6680917	K2-2

Gombak

BR901	0	1		Kuala Lumpur - Ipoh	3.2975362 101.6168206	K2-2
BR902	0	28		Jalan Lingkaran Tengah 2 (MRR2)	3.2406944 101.7178056	K3-3
BR903	0	28		Jalan Lingkaran Tengah 2 (MRR2)	3.2352778 101.6850000	K3-3
BR904	2	B27		Rawang - Kuala Selangor	3.3195590 101.5174540	T1-1
BR905	0	B22		Selayang - Kepong	3.2300180 101.6384777	K2-2
BR906	0	68		Jalan Gombak	3.2349500 101.7141700	K2-2

Sepang

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
BR004	60,092	4,405	1800 - 1900	73.7	3.6	4.8	1.1	3.4	13.3	D	5283	6584	2027
BR005	22,895	1,901	1800 - 1900	79.2	2.0	4.8	1.1	2.9	9.9	F	2230	1878	R
BR006	23,008	2,356	0700 - 0800	64.3	14.7	3.9	1.3	0.9	14.9	F	2943	2322	R
BR007	72,901	8,710	1800 - 1900	75.7	7.1	3.8	2.6	1.0	9.7	E	10456	10948	-
BR008	19,119	1,689	1800 - 1900	56.8	9.0	10.6	2.2	6.2	15.2	F	2394	2117	R
BR009	18,919	1,902	0700 - 0800	72.0	7.9	3.1	1.1	0.1	15.8	D	2186	2555	2021

Klang

BR101	129,415	9,283	1400 - 1500	73.5	4.1	4.0	0.4	1.7	16.2	F	10621	10175	R
BR102	63,989	4,872	1800 - 1900	67.8	5.7	6.2	1.0	1.8	17.5	A	5877	9908	-
BR103	65,743	6,492	1700 - 1800	41.8	6.1	8.9	20.4	0.9	21.9	F	10522	5838	R
BR104	46,841	3,934	0700 - 0800	62.2	4.1	7.8	4.7	5.8	15.5	A	5379	9130	-
BR105	22,902	1,895	1800 - 1900	62.7	6.1	7.8	1.7	4.4	17.3	F	2462	2163	R
BR106	66,900	4,953	1800 - 1900	77.6	2.3	4.2	0.3	1.2	14.4	D	5531	6809	-
BR107	68,970	4,954	0800 - 0900	64.4	6.3	8.3	2.5	4.3	14.2	F	6558	6255	R
BR108	89,634	7,087	1800 - 1900	73.4	2.3	4.7	1.4	2.7	15.6	D	8331	9925	-
BR110	43,664	4,016	0700 - 0800	65.3	4.2	7.1	1.9	0.6	20.9	F	4813	2300	R
BR111	35,017	3,084	0800 - 0900	59.7	4.5	10.5	3.0	1.2	21.1	F	3969	2197	R
BR112	48,848	3,806	0700 - 0800	48.9	2.2	6.0	15.6	11.1	16.2	F	6269	5422	NA

Kuala Langat

BR201	46,500	4,592	1600 - 1700	67.1	1.4	3.5	1.0	3.1	23.8	C	5275	6692	2026
BR202	50,460	3,970	1800 - 1900	54.9	13.8	16.9	1.1	2.8	10.5	E	5831	5963	-
BR203	7,110	651	1600 - 1700	57.7	11.0	7.9	2.9	0.8	19.7	A	847	2331	-
BR204	32,464	3,626	0700 - 0800	59.1	11.5	4.3	4.3	0.3	20.4	F	4613	2508	R

Kuala Selangor

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
BR401	33,257	4,001	0700 - 0800	57.3	12.5	8.4	5.8	1.1	15.0	D	5549	6944	-
BR402	23,936	2,624	0700 - 0800	52.8	13.1	9.4	8.0	0.9	15.9	A	3802	6765	2038
BR404	17,290	2,357	0700 - 0800	62.7	8.3	4.7	0.8	0.3	23.3	F	2766	2172	R
BR405	22,957	2,108	0700 - 0800	53.3	13.0	10.0	6.6	0.6	16.5	A	3002	5120	-

Sabak Bernam

BR501	22,373	2,670	1200 - 1300	67.4	7.4	7.0	4.1	0.4	13.7	A	3391	7171	2094
BR502	14,633	1,767	0700 - 0800	51.2	13.6	9.7	8.6	0.4	16.5	A	2581	6675	-
BR503	4,889	647	1300 - 1400	42.5	8.9	11.7	3.5	0.0	33.3	A	864	1919	2025

Hulu Langat

BR604	49,444	3,673	1800 - 1900	70.8	0.8	1.5	0.1	0.7	26.1	A	3844	7509	-
BR605	11,739	1,216	1800 - 1900	56.4	10.5	5.9	3.4	0.5	23.3	C	1547	2039	-
BR608	30,097	3,063	0700 - 0800	53.7	11.1	6.5	4.8	0.4	23.5	F	4021	1804	R
BR609	36,119	2,775	1800 - 1900	51.3	1.4	3.8	0.4	2.0	41.0	A	3107	6778	-
BR610	12,156	1,447	0700 - 0800	51.7	10.4	9.6	5.9	0.4	21.9	F	1991	1912	R
BR611	28,254	2,785	1700 - 1800	51.8	21.0	4.5	1.8	0.1	20.8	F	3665	2369	R
BR612	20,769	1,741	1700 - 1800	67.9	0.9	2.3	0.1	0.9	27.9	A	1852	7086	2035
BR614	55,427	4,737	1800 - 1900	52.9	1.3	2.8	0.2	1.0	41.9	B	5102	7469	-

Hulu Selangor

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
BR701	15,367	1,078	1300 - 1400	64.5	14.8	6.2	2.4	0.8	11.2	B	1408	2143	-
BR702	14,380	1,461	1800 - 1900	65.5	11.4	5.8	1.4	0.7	15.1	D	1817	2283	2032
BR703	1,474	151	0700 - 0800	42.5	8.4	5.4	1.8	0.4	41.5	A	182	2180	2113
BR704	19,230	2,012	1600 - 1700	74.6	7.7	2.5	0.8	0.7	13.7	A	2303	4994	2062
BR705	6,408	786	1700 - 1800	61.6	7.9	3.7	0.5	0.5	25.8	A	907	2086	-
BR706	15,193	1,793	1900 - 2000	63.6	9.7	2.6	0.8	0.9	22.4	D	2100	2415	2032
BR707	6,707	583	1800 - 1900	65.7	9.1	3.0	1.7	1.1	19.4	A	695	1985	2077
BR708	8,636	707	1700 - 1800	74.5	5.6	2.4	0.4	0.5	16.5	A	786	2140	2057
BR709	9,291	1,006	1300 - 1400	58.9	7.4	7.7	1.2	0.9	23.9	A	1239	2245	2059

Petaling

BR801	82,525	8,783	1700 - 1800	62.2	5.1	4.6	1.6	0.3	26.1	F	10170	6762	R
BR802	91,153	6,361	1500 - 1600	70.3	8.7	8.7	0.5	2.2	9.6	F	8089	7180	R
BR803	64,299	5,043	1800 - 1900	60.1	1.3	2.7	0.3	2.0	33.6	A	5547	10282	-
BR804	80,273	5,813	0700 - 0800	69.4	4.6	6.0	1.2	2.3	16.5	C	7009	9865	2053
BR806	147,658	10,618	1600 - 1700	88.4	2.0	2.7	0.6	1.2	5.1	F	11642	11138	R
BR807	203,206	16,779	1000 - 1100	55.2	8.3	6.2	2.7	0.2	27.4	F	20703	11000	R
BR811	23,922	1,961	1800 - 1900	73.5	4.9	2.6	0.4	0.2	18.4	A	2159	7749	2100
BR814	59,689	4,628	1700 - 1800	72.8	2.7	4.5	0.7	2.2	17.1	A	5328	10060	-
BR815	101,026	7,194	1800 - 1900	72.2	0.7	2.0	0.1	0.6	24.3	E	7572	7785	-
BR816	60,245	5,242	0700 - 0800	70.4	1.7	4.0	0.2	1.9	21.9	C	5864	7543	NA
BR817	40,415	3,395	1100 - 1200	55.5	3.2	6.6	2.5	2.7	29.4	B	4198	6436	NA

Gombak

BR901	71,179	5,352	1700 - 1800	59.4	1.3	3.5	0.2	1.5	34.1	D	5881	7379	-
BR902	108,272	8,554	1500 - 1600	47.8	10.0	23.4	3.0	6.1	9.7	F	13967	8152	R
BR903	128,935	9,709	1200 - 1300	64.4	9.5	12.6	0.7	1.7	11.1	F	12940	10430	R
BR904	23,591	2,671	1400 - 1500	55.1	14.4	5.4	2.7	0.4	22.0	F	3439	2322	R
BR905	95,331	8,841	1800 - 1900	60.5	8.0	5.0	2.4	0.1	24.1	F	10645	6701	R
BR906	30,344	2,930	0700 - 0800	50.4	0.4	0.9	0.0	0.6	47.7	A	3021	7088	NA

Sepang

Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
BR004	53,252	53,673	51,485	57,683	63,597	68,578	65,081	66,317	70,323	60,092	2.84	0.55
BR005	24,946	28,140	29,373	32,280	36,159	25,094	27,696	26,644	26,876	22,895	-1.46	0.09
BR006	17,256	19,603	17,011	26,643	20,847	22,201	17,821	26,109	27,365	23,008	3.59	0.34
BR007	68,166	80,875	64,854	91,523	87,554	66,348	51,299	71,435	69,792	72,901	-1.19	0.04
BR008	17,904	16,655	33,969	33,908	31,675	33,869	35,087	41,273	45,937	19,119	5.36	0.15
BR009	14,750	13,561	23,471	30,621	27,566	28,503	35,281	36,759	41,857	18,919	7.78	0.28

Klang

BR101	103,515	91,005	128,931	142,038	124,226	140,640	140,880	149,275	157,216	129,415	4.04	0.50
BR102	52,901	53,983	57,835	56,513	52,563	49,706	47,687	47,521	47,425	63,989	-0.45	0.00
BR103	66,090	71,297	68,957	65,872	55,881	77,972	60,456	65,416	65,579	65,743	-0.50	0.03
BR104	53,429	56,127	56,044	52,447	45,270	50,775	49,373	46,008	44,949	46,841	-2.30	0.67
BR105	44,030	46,574	45,911	46,587	39,623	41,558	42,806	41,105	41,122	22,902	-4.55	0.45
BR106	94,404	118,734	101,095	96,518	103,959	97,271	96,336	75,575	76,028	66,900	-4.70	0.61
BR107	90,918	89,381	94,676	94,351	111,139	86,906	86,349	100,174	101,977	68,970	-1.09	0.04
BR108	141,121	135,678	140,780	143,233	136,424	131,348	128,988	101,893	100,568	89,634	-4.94	0.73
BR110	39,588	42,084	43,890	44,564	49,585	43,956	41,300	42,677	43,167	43,664	0.35	0.03
BR111	40,677	44,995	38,626	41,693	38,891	34,594	35,408	32,816	31,799	35,017	-3.15	0.73
BR112	NA	NA	NA	NA	NA	NA	NA	NA	NA	48,848	NA	NA

Kuala Langat

BR201	41,443	48,678	35,126	37,352	44,922	50,001	44,247	56,771	58,406	46,500	3.23	0.37
BR202	52,429	56,444	53,809	64,219	55,501	65,496	63,504	52,920	53,634	50,460	-0.40	0.01
BR203	7,101	6,852	7,128	7,777	7,741	7,890	7,999	5,903	5,930	7,110	-1.12	0.07
BR204	29,916	29,299	32,117	31,669	29,535	31,199	31,281	31,275	31,807	32,464	0.73	0.38

Kuala Selangor

Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
BR401	34,266	35,376	34,238	35,485	46,517	37,696	37,649	33,225	32,959	33,257	-0.57	0.02
BR402	16,133	16,686	19,872	22,195	23,605	18,623	19,230	21,327	21,962	23,936	3.13	0.45
BR404	13,263	12,848	14,132	12,750	19,427	23,711	21,853	19,085	20,510	17,290	5.44	0.40
BR405	22,822	23,003	23,648	21,278	22,618	21,611	22,277	21,568	21,697	22,957	-0.44	0.15

Sabak Bernam

BR501	20,466	21,743	23,370	22,174	22,443	20,838	24,554	21,642	22,118	22,373	0.47	0.07
BR502	15,806	16,081	15,892	15,046	16,161	17,138	17,048	10,728	10,685	14,633	-3.08	0.26
BR503	2,893	2,849	2,453	2,487	2,468	3,289	4,569	9,267	9,901	4,889	13.46	0.49

Hulu Langat

BR604	56,609	57,591	53,689	59,023	54,222	48,737	48,199	46,607	45,441	49,444	-4.32	0.78
BR605	11,834	11,927	11,947	11,341	11,999	12,465	13,006	11,052	10,909	11,739	-0.39	0.04
BR608	33,086	28,098	27,617	27,877	28,572	30,374	28,903	27,847	27,978	30,097	-0.41	0.05
BR609	50,648	54,987	62,314	56,205	53,977	53,020	46,636	42,162	42,470	36,119	-2.76	0.43
BR610	11,424	12,860	12,222	11,525	11,120	9,090	8,561	9,618	9,663	12,156	-2.26	0.25
BR611	15,392	14,877	16,207	18,778	17,554	19,083	26,451	20,225	22,144	28,254	6.35	0.74
BR612	10,737	11,973	13,654	15,346	16,728	16,364	18,161	23,210	26,231	20,769	8.83	0.82
BR614	65,123	66,174	70,499	79,801	83,329	84,275	64,230	64,599	65,548	55,427	-2.08	0.12

Hulu Selangor

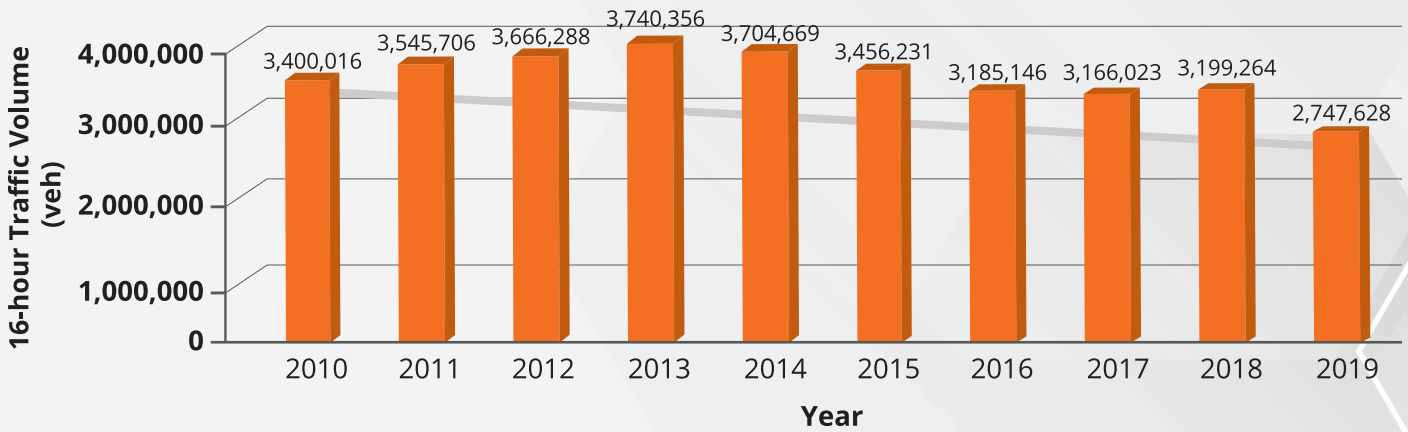
BR701	18,293	13,430	13,320	15,082	15,022	15,538	16,063	13,476	13,626	15,367	-0.72	0.06
BR702	14,827	12,429	10,994	12,624	13,556	12,323	13,511	15,160	15,219	14,380	1.73	0.25
BR703	1,123	1,073	1,703	1,267	1,572	1,990	1,897	1,313	1,391	1,474	2.67	0.15
BR704	10,307	26,689	23,697	16,769	17,283	22,759	19,230	18,287	19,284	19,746	-0.03	1.82
BR705	8,785	8,147	8,172	8,240	8,836	8,035	7,960	6,779	6,843	6,408	-3.15	0.69
BR706	8,297	10,525	12,997	12,144	9,824	10,594	1,915	13,837	13,145	15,193	1.12	0.03
BR707	4,504	5,047	7,131	6,677	7,405	5,994	7,108	5,452	5,661	6,707	1.83	0.07
BR708	6,928	7,951	7,211	8,415	9,286	6,792	9,152	9,295	9,516	8,636	2.70	0.41
BR709	7,189	8,276	9,591	6,126	7,309	4,560	7,618	8,915	8,709	9,291	1.50	0.05

Petaling

Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
BR801	206,864	207,643	146,240	156,700	119,307	53,045	112,247	86,482	78,439	82,525	-11.83	0.81
BR802	95,650	142,062	150,838	176,171	228,163	175,841	139,249	135,292	145,304	91,153	-1.08	-0.01
BR803	94,410	101,892	109,350	140,230	114,847	120,929	146,680	124,003	131,542	64,299	-0.52	-0.02
BR804	142,364	68,660	130,436	128,947	113,281	75,401	124,395	162,853	166,810	80,273	1.00	-0.01
BR806	274,278	281,803	280,347	242,844	249,898	219,634	222,575	191,448	184,555	147,658	-7.21	0.86
BR807	369,479	313,431	349,936	348,056	357,032	383,080	260,288	220,034	211,453	203,206	-6.80	0.68
BR811	17,487	18,609	16,372	20,525	19,037	26,605	17,000	17,312	17,931	23,922	1.58	0.09
BR814	78,876	60,675	112,538	98,459	94,404	108,972	67,103	80,143	81,481	59,689	-1.91	0.05
BR815	133,701	109,705	133,308	167,137	136,854	171,629	75,817	75,050	74,825	101,026	-6.19	0.25
BR816	NA	NA	NA	NA	NA	NA	NA	NA	NA	60,245	NA	NA
BR817	NA	NA	NA	NA	NA	NA	NA	NA	NA	40,415	NA	NA

Gombak

BR901	85,300	82,766	83,885	81,958	66,189	75,365	80,532	76,200	76,436	71,179	-1.57	0.39
BR902	129,345	144,334	151,486	147,449	144,308	129,579	138,711	153,545	153,914	108,272	-0.83	0.03
BR903	77,375	139,717	93,510	78,087	84,126	152,619	73,586	114,061	119,753	128,935	2.99	0.08
BR904	16,004	13,897	15,104	14,795	30,382	15,694	24,566	27,023	29,012	23,591	7.52	0.46
BR905	164,292	276,234	271,289	242,876	263,361	89,040	108,690	109,047	101,958	95,331	-12.10	0.57
BR906	NA	NA	NA	NA	NA	NA	NA	NA	NA	30,344	NA	NA



$$y = 4E+06e^{-0.024x} \quad | \quad R^2 = 0.57$$

Normal Growth = -2.40%

Yearly 16-Hour Traffic Volume (2010-2019) & Normal Traffic Growth with Exponential Trendline for the Year 2019 in Selangor

**14.12%
DECREASE**

There are 62 census stations in Selangor. The 16-hour traffic volume indicates a steady growth from year 2010 until year 2013. However, there is a pattern of decline from year 2013 to 2019. There is a decrease of 14.12% from year 2018 to 2019.



For the year 2019, the observed traffic growth rate for the state of Selangor is -2.40%. The basis of traffic growth rate record is to be used as a projection indicator of subsequent traffic growth rate for road forethought as well as for the expansion of current and new roads in Selangor.



KUALA LUMPUR

Jalan Lingkar Tengah 2 (MRR2)

5

Census Stations

DISTRIBUTION OF SURVEY STATIONS

W.P KUALA LUMPUR



W.P Kuala Lumpur ■ 5 ■ 0 ■ 0

W.P Kuala Lumpur

Census Station Number	Survey Type	Route Number	KM	Description Of Location	GPS Coordinate (WGS84) (Latitude, Longitude)	Type Of Carriageway
WR101	0	54		Kuala Lumpur - Kuala Selangor (Jalan Kepong)	3.2051944 101.6673611	K3-3
WR102	0	1		Kuala Lumpur -Ipoh	3.2356667 101.6714722	K3-3
WR103	0	1		Kuala Lumpur -Ipoh	3 2229444 101.6696944	K3-3
WR107	0	28		Jalan Lingkaran Tengah 2 (MRR2)	3.0906800 101.7297000	K3-3
WR108	0	28		Jalan Lingkaran Tengah 2 (MRR2)	3.151914 101.745662	K3-3

W.P Kuala Lumpur

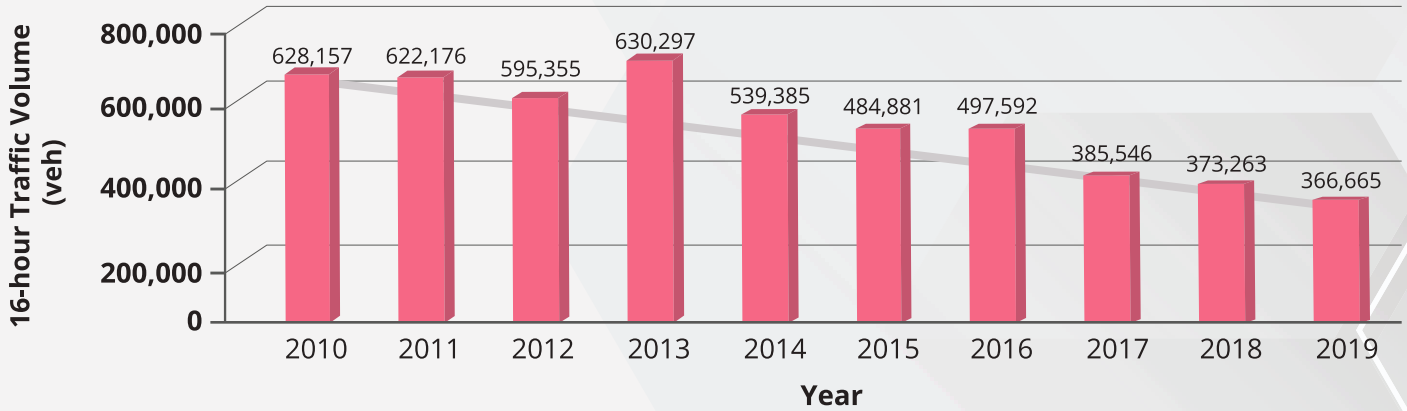
Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
WR101	95,537	6,672	1200 - 1300	71.4	2.0	2.4	0.2	0.7	23.2	B	7181	11142	-
WR102	132,621	9,464	1700 - 1800	70.5	6.1	6.9	1.0	2.5	13.0	F	11687	9781	R
WR103	138,507	9,874	1700 - 1800	67.7	4.5	5.5	0.6	1.6	20.1	F	11577	10023	R
WR107	80,216	6,095	1800 - 1900	59.5	5.5	9.8	1.0	1.9	22.4	C	7672	10068	NA
WR108	127,245	9,179	1300 - 1400	59.1	11.0	16.8	1.1	2.7	9.3	F	13191	9655	R

W.P Kuala Lumpur

Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
WR101	153,564	136,860	139,737	160,694	132,401	111,097	122,688	103,024	98,490	95,537	-5.51	0.76
WR102	277,797	276,092	252,341	253,179	214,760	211,188	169,218	138,477	134,184	132,621	-9.66	0.93
WR103	196,796	209,224	203,277	216,424	192,223	162,596	205,686	144,046	140,589	138,507	-4.84	0.62
WR107	NA	NA	NA	NA	NA	NA	150,233	195,818	197,345	80,216	NA	NA
WR108	NA	NA	NA	NA	NA	NA	NA	162,480	163,747	127,245	NA	NA

YEAR 16-HOUR TRAFFIC VOLUME (2010-2019)

W.P Kuala Lumpur



$$y = 733638e^{-0.069x} \quad | \quad R^2 = 0.90$$

Normal Growth = -6.90%

Yearly 16-Hour Traffic Volume (2010-2019) & Normal Traffic Growth with Exponential Trendline for the Year 2019 in W.P Kuala Lumpur

**1.77%
DECREASE**

There are 5 census stations in Wilayah Persekutuan Kuala Lumpur. The 16-hour traffic volume shows a decline in the number of vehicles since the year 2010 until year 2015, aside from year 2013 which records a slight increase in traffic volume. There is a rise in traffic volume from year 2015 to 2017 which is followed by a decline from year 2017 to 2019. Between the year 2018 and 2019, there is a difference between the traffic volumes by 1.77% which shows that the number of vehicles in the year 2019 has decreased by 6,598.

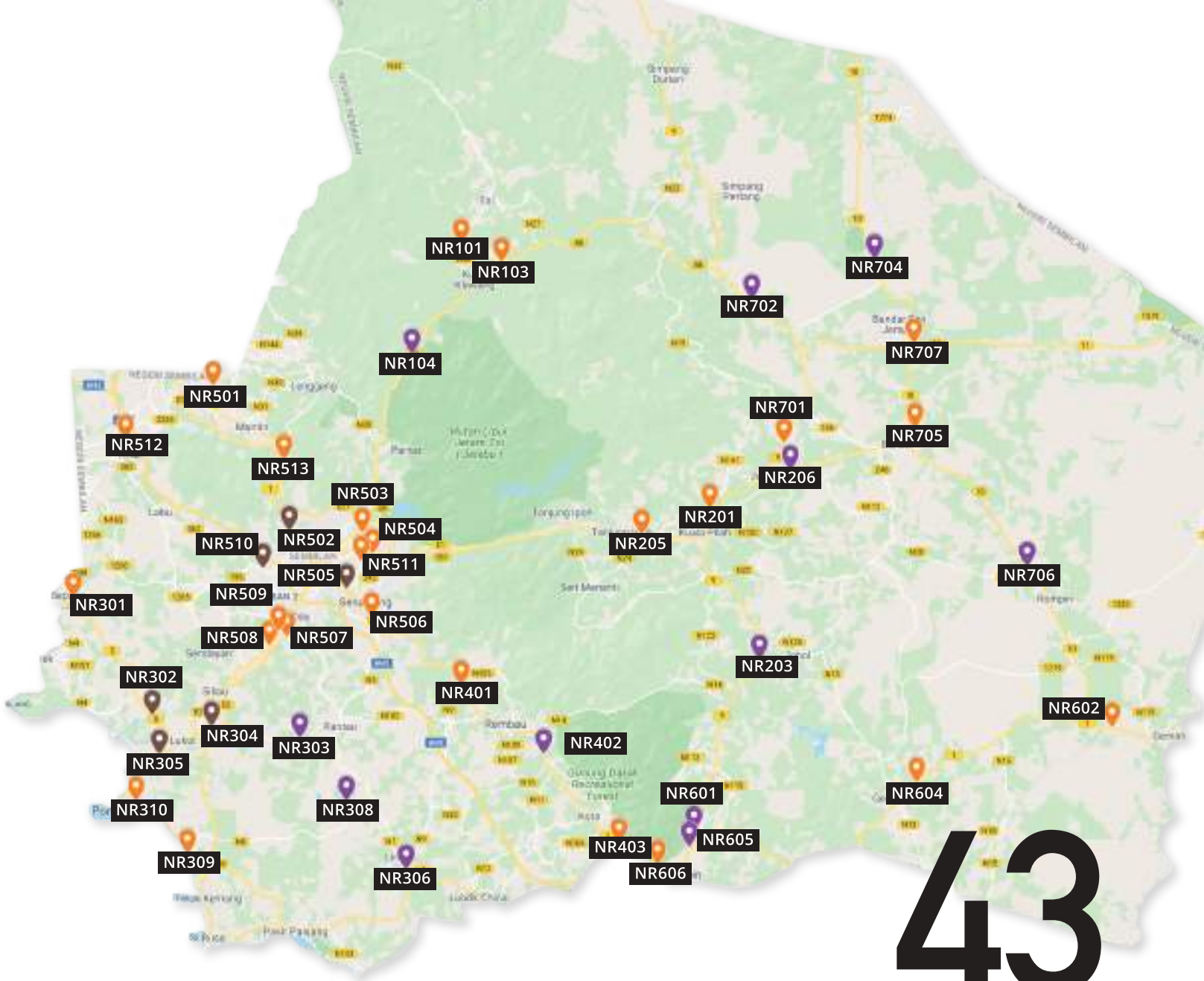


For the year 2019, the observed traffic growth rate for the state of Wilayah Persekutuan Kuala Lumpur is -6.90%. The basis of traffic growth rate record is to be used as a projection indicator of subsequent traffic growth rate for road forethought as well as for the expansion of current and new roads in Wilayah Persekutuan Kuala Lumpur.



NEGERI SEMBILAN

Jalan Seremban - Kuala Pilah (FT51)






43

Census Stations

DISTRIBUTION OF SURVEY STATIONS

NEGERI SEMBILAN

Jelebu	0	2	1
Kuala Pilah	0	2	2
Port Dickson	3	3	3
Rembau	0	2	1
Seremban	3	10	0
Tampin	0	3	2
Jempol	0	3	3

		
TYPE 0	TYPE 2	TYPE 3
6	25	12

Jelebu

Census Station Number	Survey Type	Route Number	KM	Description Of Location	GPS Coordinate (WGS84) (Latitude, Longitude)	Type Of Carriageway
NR101	2	N32		Kuala Klawang - Genting Peras	2.9652467 102.0582760	T1-1
NR103	2	86		K. Klawang - Spg Pertang (Peradong)	2.9503840 102.0895600	T1-1
NR104	3	86		Seremban - Kuala Klawang	2.8791667 102.0200000	T1-1

Kuala Pilah

NR201	2	9		Tampin - Kuala Pilah - Batu Kikir	2.7581251 102.2523839	T1-1
NR203	3	9		Tampin - Kuala Pilah	2.6398889 102.2917500	T1-1
NR205	2	51		Seremban - Kuala Pilah	2.7379167 102.1999722	T1-1
NR206	3	13		Juasseh - Bahau	2.7877320 102.3157970	T1-1

Port Dickson

NR301	2	5		Sepang - Port Dickson (Tanah Merah)	2.6885362 101.7548725	T1-1
NR302	0	5		Sepang - Port Dickson (Lukut)	2.5965200 101.8167170	T1-1
NR303	3	N6		Rantau - Siliau	2.5786167 101.9318604	T1-1
NR304	0	53		Seremban - Port Dickson (Lukut)	2.5877416 101.8621820	T1-1
NR305	0	5		Seremban - Port Dickson	2.5656387 101.8219017	K2-2
NR306	3	5		Port Dickson - Lubok Cina	2.4762584 102.0149358	T1-1
NR308	3	N8		Jalan Si Rusa - Air Kuning	2.5296130 101.9684300	T1-1
NR309	2	5		P. Dickson - Lubok Cina (Jalan Pantai)	2.4876416 101.8441254	T1-1
NR310	2	5		S eremban - P.Dickson (P. D. Bypass)	2.5296389 101.8032222	K2-2

Rembau

NR401	2	1		Seremban - Tampin	2.6198540 102.0585090	T1-1
NR402	3	1		Seremban - Tampin	2.5663220 102.1229090	T1-1
NR403	2	1		Seremban - Tampin	2.4964722 102.1815556	T1-1

Seremban

NR501	2	1		Seremban - Kuala Lumpur (Old road)	2.8537613 101.8640797	T1-1
NR502	0	1		Seremban - Kuala Lumpur (Old road)	2.7408270 101.9235800	T1-1
NR503	2	86		Seremban - Kuala Klawang	2.7395830 101.9805280	T1-1
NR504	2	51		Seremban - Kuala Pilah	2.7229600 101.9889500	K2-2
NR505	0	1		Seremban - Gemas	2.6956170 101.9683480	K2-2
NR506	2	N5		Seremban - Sg Gadut / Ulu Sawah	2.6736880 101.9881660	K2-2
NR507	2	N7		Seremban - Kuala Sawah	2.6577220 101.9218060	T1-1
NR508	2	53		Seremban - Port Dickson	2.6510830 101.9075830	T2-2
NR509	2	362		Seremban - Labu	2.6622534 101.9150966	T1-1

Seremban

Census Station Number	Survey Type	Route Number	KM	Description Of Location	GPS Coordinate (WGS84) (Latitude, Longitude)	Type Of Carriageway
NR510	0	241		Sungai Ujong	2.7110980 101.9027490	K2-2
NR511	2	97		Paroi - Senawang	2.7176940 101.9795830	T1-1
NR512	2	32		Nilai - KLIA	2.8122222 101.7950000	K2-2
NR513	2	1		Jalan Mantin	2.7961100 101.9194700	T1-2

Tampin

NR601	3	9		Tampin - Kuala Pilah	2.5060556 102.2402778	T1-1
NR602	2	1		Seremban - Gemas	2.5870556 102.5673611	T1-1
NR604	2	1		Seremban - Gemas	2.5438781 102.4145889	T1-1
NR605	3	1		Seremban - Gemas	2.4937406 102.2369702	T1-1
NR606	2	1		Seremban - Tampin	2.4791958 102.2122955	T1-1

Jempol

NR701	2	9		Seremban - Batu Kikir - Bahau	2.8094360 102.3107490	T1-1
NR702	3	9		Kuala Pilah - Manchis	2.9219750 102.2854000	T1-1
NR704	3	10		Bahau - Ayer Hitam - Kemayan	2.9530006 102.3816290	T1-1
NR705	2	10		Bahau - Kemayan	2.8208333 102.4129444	T1-1
NR706	3	10		Bahau - Rompin	2.7125650 102.5008620	T1-1
NR707	2	11		Lebuh raya Bahau - Keratong	2.8874167 102.4126111	T1-1

Jelebu

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
NR101	14,356	2,217	1700 - 1800	52.7	9.2	3.7	0.4	0.8	33.2	E	2599	2667	2022
NR103	11,799	1,556	0700 - 0800	53.7	10.3	3.5	1.9	0.6	30.0	F	1875	1743	R
NR104	8,471	1,083	0700 - 0800	69.1	9.3	4.0	1.2	0.8	15.7	B	1291	2141	2035

Kuala Pilah

NR201	19,277	1,828	1700 - 1800	71.8	7.6	3.3	2.9	1.2	13.2	D	2207	2581	2035
NR203	5,036	488	1700 - 1800	59.1	8.0	7.7	5.6	0.7	19.0	A	644	1942	2069
NR205	26,564	2,314	1700 - 1800	78.2	7.0	2.4	1.5	0.8	10.1	F	2666	2407	R
NR206	10,708	1,039	1700 - 1800	62.6	13.6	6.7	3.4	0.8	12.9	D	1372	1717	2042

Port Dickson

NR301	17,186	1,441	1700 - 1800	61.7	12.5	8.7	5.7	0.6	10.7	E	1993	2020	R
NR302	25,706	3,252	1900 - 2000	63.4	11.3	6.3	3.6	0.3	15.1	F	4178	1983	R
NR303	6,759	810	0700 - 0800	48.2	12.0	5.3	2.1	0.5	31.8	A	1015	1894	2065
NR304	36,878	4,239	0700 - 0800	67.6	9.7	9.2	4.3	0.7	8.5	F	5657	2158	R
NR305	62,777	5,995	0700 - 0800	74.2	8.2	2.2	1.7	0.5	13.1	E	6957	7122	R
NR306	6,722	593	1500 - 1600	58.9	8.2	2.1	1.3	0.4	29.0	A	682	2317	2051
NR308	6,567	810	0700 - 0800	62.8	9.8	2.5	0.9	0.7	23.3	A	945	2018	2041
NR309	27,680	2,054	1700 - 1800	65.2	6.3	2.3	0.2	0.7	25.3	F	2292	2143	R
NR310	18,894	1,920	0700 - 0800	67.0	7.1	3.4	2.6	0.4	19.5	A	2268	6922	2131

Rembau

NR401	21,976	2,310	0700 - 0800	68.1	7.4	6.5	2.2	0.8	14.9	F	2847	1892	R
NR402	12,893	1,394	0700 - 0800	67.3	8.1	8.8	2.1	0.5	13.2	E	1765	1858	-
NR403	13,449	1,327	0700 - 0800	70.7	7.1	7.2	2.4	0.6	12.0	D	1644	2008	2039

Seremban

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
NR501	11,339	1,078	1500 - 1600	63.6	8.4	6.5	4.6	0.7	16.3	B	1387	2255	-
NR502	31,575	3,032	1700 - 1800	67.3	13.0	3.4	1.2	0.4	14.7	F	3679	2613	R
NR503	16,797	2,091	0700 - 0800	71.2	9.5	3.2	1.6	0.2	14.4	F	2465	1973	R
NR504	28,607	2,256	1700 - 1800	66.9	0.7	1.5	0.1	1.2	29.4	A	2387	7539	2047
NR505	48,647	4,414	0700 - 0800	68.4	2.4	5.2	0.8	1.9	21.3	C	5097	6677	2030
NR506	13,190	1,794	1700 - 1800	52.4	14.6	4.8	1.4	0.8	26.0	A	2265	7252	-
NR507	20,737	1,894	1700 - 1800	61.5	10.9	3.3	2.5	0.7	21.1	D	2314	2630	2025
NR508	16,465	1,489	1900 - 2000	66.5	7.0	8.0	2.2	0.9	15.4	C	1865	2519	2049
NR509	25,923	2,296	1700 - 1800	65.2	10.5	5.8	2.3	0.4	15.9	F	2858	2324	R
NR510	46,369	3,635	0700 - 0800	80.0	6.5	1.7	0.2	1.2	10.4	A	4063	7449	-
NR511	18,650	2,027	0700 - 0800	73.0	8.5	3.0	0.8	0.3	14.4	F	2334	1991	R
NR512	29,311	2,328	1700 - 1800	77.3	0.6	1.2	0.1	1.1	19.7	A	2438	7033	2050
NR513	11,652	982	1800 - 1900	68.9	13.7	5.3	1.6	0.4	10.1	A	1233	5036	NA

Tampin

NR601	4,380	449	0700 - 0800	59.7	8.3	5.9	3.5	1.1	21.4	A	567	1976	2144
NR602	12,253	897	1400 - 1500	56.6	12.3	7.5	7.9	0.6	15.1	B	1260	1883	2042
NR604	11,615	917	0700 - 0800	58.8	10.5	6.2	5.6	1.1	17.9	A	1220	2184	-
NR605	10,952	1,106	0700 - 0800	62.4	11.2	6.1	2.9	0.6	16.9	B	1409	2223	2050
NR606	15,630	1,285	1700 - 1800	68.0	7.8	4.3	5.5	0.9	13.5	C	1632	2100	2044

Jempol

NR701	17,278	1,728	1700 - 1800	67.3	9.5	5.9	4.1	0.5	12.7	F	2204	1977	R
NR702	6,993	664	1200 - 1300	60.6	11.9	8.1	4.1	0.4	14.9	A	884	1765	2055
NR704	21,993	1,799	1300 - 1400	54.7	13.8	7.4	5.9	0.3	17.8	F	2474	1675	R
NR705	11,931	1,095	1700 - 1800	47.9	12.2	8.6	10.5	0.2	20.6	E	1605	1760	-
NR706	9,737	899	1200 - 1300	40.9	14.2	10.7	14.6	0.4	19.2	D	1441	1670	2027
NR707	13,073	1,130	0700 - 0800	57.2	12.9	6.4	10.0	0.5	12.9	E	1623	1628	2019

Jelebu

Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
NR101	15,191	12,810	12,553	12,699	12,550	12,894	14,632	14,203	14,254	14,356	0.79	0.10
NR103	9,454	9,899	9,486	9,274	10,220	9,425	12,489	12,120	12,655	11,799	3.49	0.67
NR104	6,104	6,527	6,305	7,081	5,494	6,192	7,387	7,585	7,762	8,471	3.23	0.60

Kuala Pilah

NR201	18,275	16,325	13,054	18,015	17,366	8,726	12,961	17,005	16,681	19,277	0.17	-0.01
NR203	3,177	5,212	4,738	3,616	3,568	1,783	4,465	4,852	4,823	5,036	2.22	0.05
NR205	21,601	23,422	24,579	24,141	23,984	24,572	24,895	25,041	25,707	26,564	1.65	1.65
NR206	8,339	10,185	9,202	8,927	8,884	4,968	7,523	10,027	9,967	10,708	0.87	0.87

Port Dickson

NR301	35,671	17,207	27,411	24,273	27,331	22,956	19,433	19,108	18,993	17,186	-5.17	0.44
NR302	46,261	36,334	39,319	41,120	46,479	35,197	27,474	34,322	34,116	25,706	-4.79	0.52
NR303	5,165	5,574	5,667	5,448	5,216	5,304	6,492	5,267	5,320	6,759	1.38	0.21
NR304	65,580	46,201	54,394	59,864	62,112	57,613	41,295	48,851	48,557	36,878	-3.98	0.40
NR305	106,143	72,372	96,685	74,129	87,872	74,402	53,157	60,781	60,416	62,777	-5.74	0.62
NR306	4,093	4,871	3,881	3,608	3,848	3,798	4,549	4,876	4,924	6,722	3.86	0.44
NR308	6,699	7,353	8,453	7,799	6,971	8,601	11,903	10,860	11,530	6,567	3.46	0.20
NR309	26,376	26,645	27,367	27,534	27,745	28,624	15,881	28,309	28,139	27,680	-0.38	-0.01
NR310	17,602	20,705	19,254	19,573	19,659	22,274	20,273	19,879	20,157	18,894	0.51	0.05

Rembau

NR401	16,353	17,326	16,856	17,427	16,004	18,419	11,492	20,959	20,833	21,976	2.38	0.24
NR402	11,678	12,620	11,775	9,910	9,332	10,536	6,999	12,076	12,004	12,893	-0.15	-0.01
NR403	12,690	12,565	12,832	12,645	11,459	12,465	12,737	13,415	13,334	13,449	0.77	0.27

Seremban

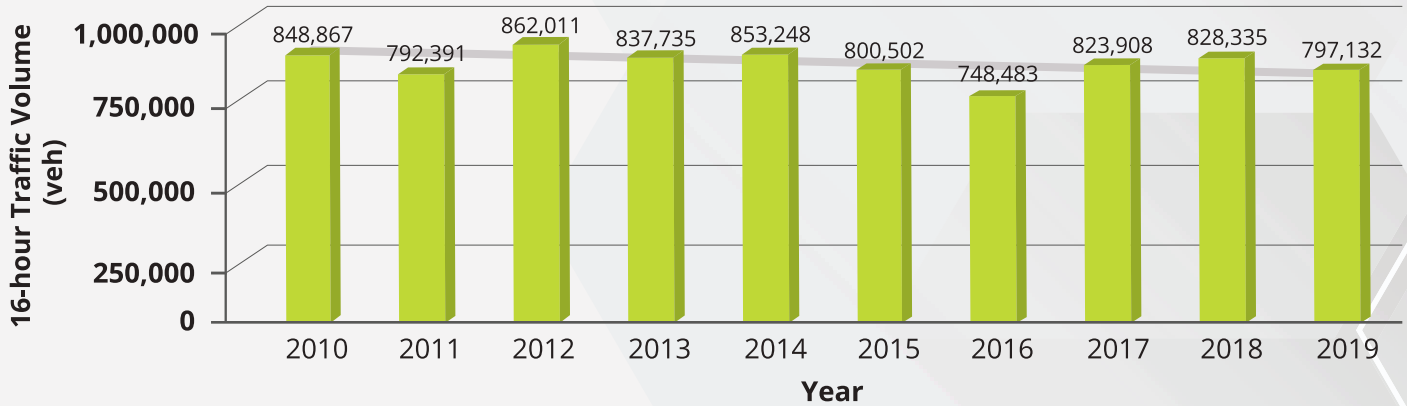
Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
NR501	12,052	11,964	11,397	10,671	11,810	11,870	10,984	11,314	11,088	11,339	-0.62	0.23
NR502	43,126	42,148	39,784	39,538	34,353	38,853	39,378	43,620	43,359	31,575	-1.23	0.11
NR503	10,778	14,080	11,882	13,933	14,754	15,649	15,455	17,238	17,450	16,797	4.68	0.82
NR504	17,423	18,817	19,923	20,620	20,937	20,520	21,008	23,420	24,123	28,607	4.27	0.85
NR505	35,708	38,378	57,639	50,484	48,002	47,976	48,966	49,199	51,260	48,647	2.38	0.20
NR506	20,621	22,052	22,302	23,784	21,647	13,851	11,604	14,223	13,697	13,190	-7.40	0.66
NR507	17,087	17,825	18,194	17,083	17,802	18,232	17,143	20,521	21,034	20,737	2.14	0.63
NR508	14,728	15,310	16,349	15,911	15,820	15,831	16,086	15,828	16,661	16,465	0.89	0.56
NR509	21,511	22,881	25,373	25,246	27,050	25,733	22,475	24,767	25,819	25,923	1.22	0.23
NR510	58,814	58,337	60,592	60,615	57,729	52,092	52,512	49,282	47,803	46,369	-3.10	0.85
NR511	17,400	17,875	19,044	17,951	18,800	18,772	17,625	20,371	20,371	18,650	1.10	0.36
NR512	21,625	25,022	25,048	22,912	26,634	24,621	26,198	30,646	32,114	29,311	3.53	0.72
NR513	NA	NA	NA	NA	NA	NA	NA	NA	NA	11,652	NA	NA

Tampin

NR601	4,040	4,096	4,177	3,964	3,826	3,726	4,376	4,098	4,073	4,380	0.52	0.10
NR602	10,726	10,240	11,614	11,234	11,639	12,166	12,776	11,906	12,172	12,253	1.80	0.65
NR604	11,312	10,837	11,007	10,976	11,142	9,739	9,824	9,759	9,700	11,615	-0.97	0.16
NR605	9,721	10,055	9,894	9,477	7,220	7,594	9,961	10,996	10,974	10,963	1.47	0.02
NR606	13,993	15,056	14,965	14,986	14,747	14,961	15,004	15,128	15,191	15,630	0.69	0.56

Jempol

NR701	16,407	16,020	19,559	17,685	17,289	20,380	22,456	18,495	19,091	17,278	1.39	0.14
NR702	5,739	6,242	5,391	5,587	6,362	5,536	5,780	6,600	6,649	6,993	1.94	0.45
NR704	7,304	8,321	8,072	7,610	7,670	7,692	10,383	23,553	21,711	21,971	13.89	0.70
NR705	21,951	21,282	26,948	31,858	30,974	28,123	22,842	10,305	10,439	11,931	-9.92	0.29
NR706	7,911	8,456	8,160	7,920	7,466	8,492	8,929	8,921	8,867	9,737	1.90	0.59
NR707	12,438	12,944	10,892	10,616	13,490	9,353	10,688	14,189	14,516	13,073	1.35	0.10



$$y = 843042e^{-0.005x} \quad | \quad R^2 = 0.14$$

Normal Growth = -0.50%

Yearly 16-Hour Traffic Volume (2010-2019) & Normal Traffic Growth with Exponential Trendline for the Year 2019 in Negeri Sembilan

**3.77%
DECREASE**

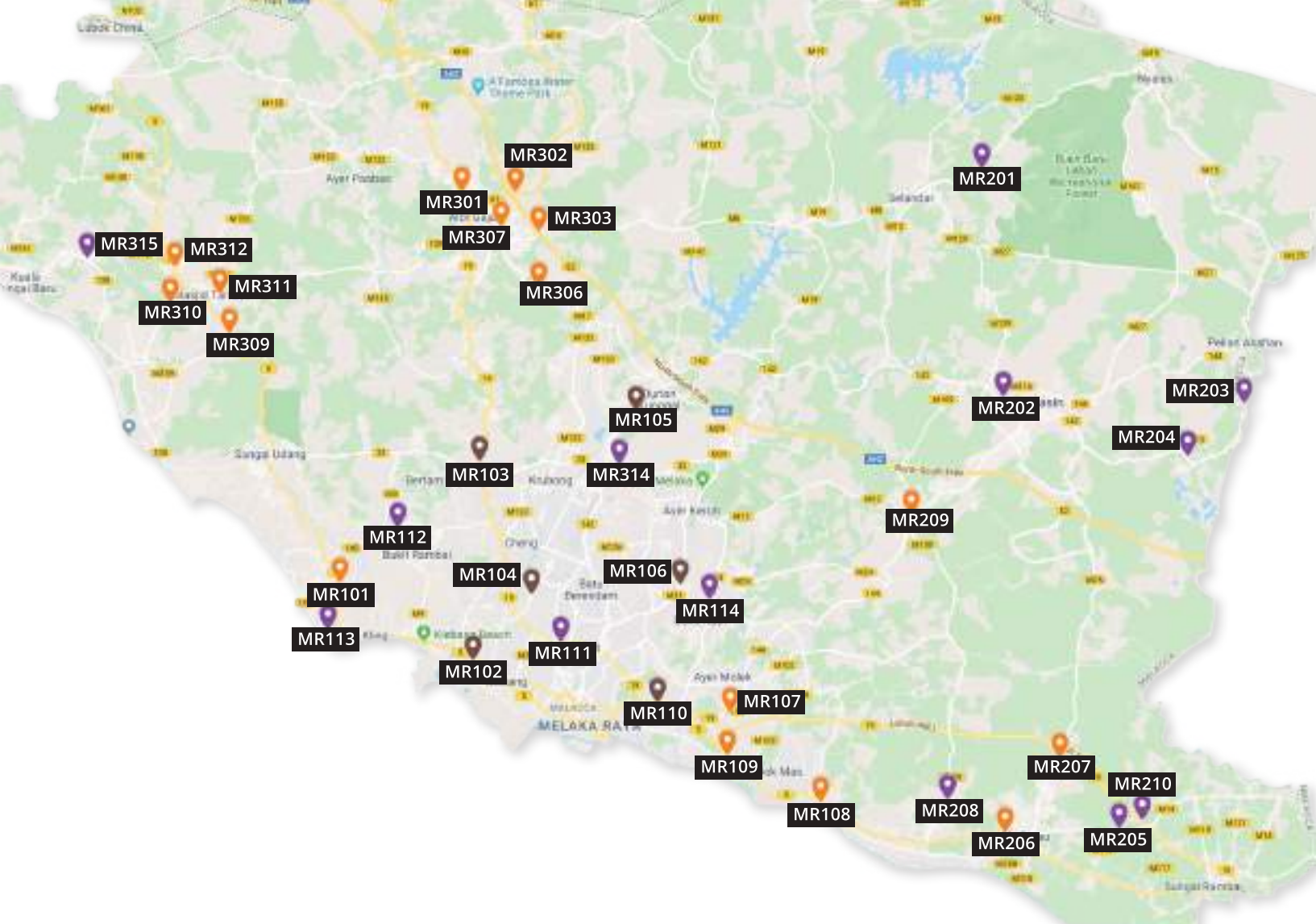
There are 43 census stations in Negeri Sembilan. From the yearly 16-hour traffic volume, there is a slight decrease for the number of vehicles by 3.77% from the year 2018 to 2019 which is equivalent to 31,203 vehicles.

For the year 2019, the observed traffic growth rate for the state of Negeri Sembilan is -0.50%. The basis of traffic growth rate record is to be used as a projection indicator of subsequent traffic growth rate for road forethought as well as for the expansion of current and new roads in Negeri Sembilan.



MELAKA

Jalan Peringgit - Lebuh Ayer Keroh (FT143)



Melaka Tengah	6	4	4
Jasin	0	3	7
Alor Gajah	0	9	2

35 Census Stations

DISTRIBUTION OF SURVEY STATIONS

MELAKA

		
TYPE 0	TYPE 2	TYPE 3
6	16	13

Melaka Tengah

Census Station Number	Survey Type	Route Number	KM	Description Of Location	GPS Coordinate (WGS84) (Latitude, Longitude)	Type Of Carriageway
MR101	2	5		Jalan Melaka - Masjid Tanah	2.2415620 102.1593081	T1-1
MR102	0	5		Jalan Melaka - Sungai Udang	2.2118329 102.2105150	T1-2
MR103	0	19		Lebuah AMJ (Melaka - Alor Gajah)	2.2879677 102.2129277	K2-2
MR104	0	19		Lebuah AMJ	2.2370400 102.2330310	K2-2
MR105	0	M2		Melaka - Durian Tunggal	2.3071200 102.2729520	T1-1
MR106	0	M31		Jalan Bukit Katil	2.2410410 102.2900260	K2-2
MR107	2	M27		Melaka - Kampung Kandang - Bemban	2.1920200 102.3090010	T1-1
MR108	2	5		Jalan Melaka - Muar	2.1577800 102.3439900	T1-1
MR109	2	5		Jalan Melaka - Muar	2.1755400 102.3082000	T1-1
MR110	0	5		Jalan Melaka - Muar	2.1955271 102.2814108	K3-3
MR111	3	20		Lebuah AMJ / Jalan Lagenda	2.2189325 102.2443616	K3-3
MR112	3	140		Jalan Bukit Rambai	2.2625900 102.1818600	T1-1
MR113	3	141		Jalan Tg. Kling - Pelabuhan Tg. Beruas	2.2233368 102.1550017	T1-1
MR114	3	264		Jalan Tun Hamzah	2.2351500 102.3013400	K2-2

Jasin

MR201	3	M8		Selandar / Nyalas	2.4000278 102.4056667	T1-1
MR202	3	M2		Durian Tunggal - Jasin	2.3126996 102.4137696	T1-1
MR203	3	M2		Jasin - Chohong	2.3101276 102.5063735	T1-1
MR204	3	M2		Jasin - Simpang Kerayong	2.2900268 102.4846772	T1-1
MR205	3	M14		Merlimau - Batu Gajah	2.1475775 102.4580510	T1-1
MR206	2	5		Jalan Melaka - Muar	2.1457940 102.4145608	T1-1
MR207	2	M25		Merlimau - Jasin	2.1743758 102.4353951	T1-1
MR208	3	M109		Serkam - Bemban	2.1584793 102.3926998	T1-1
MR209	2	144		Jasin - Bemban	2.2673889 102.3784444	T1-1
MR210	3	9		Jalan Kg Pasir	2.1507317 102.4671117	K2-2

Alor Gajah

MR301	2	19		Lebuah AMJ (Alor Gajah - Kendong)	2.3910700 102.2060100	T1-1
MR302	2	61		Jalan Alor Gajah - Tampin	2.3907330 102.2266100	T1-1
MR303	2	M8		Alor Gajah - Machap	2.3759383 102.2357494	T1-1
MR306	2	M17		Durian Tunggal - Alor Gajah	2.3545825 102.2357118	T1-1
MR307	2	M17		Durian Tunggal - Alor Gajah	2.3776944 102.2211111	T1-1
MR309	2	5		Melaka - Masjid Tanah	2.3371540 102.1172350	T1-1
MR310	2	M157		Masjid Tanah - Pengkalan Balak	2.3486111 102.0946389	T1-1
MR311	2	139		Jalan Masjid Tanah - Lendu - Alor Gajah	2.3521130 102.1134350	T1-1
MR312	2	5		Jln Melaka - M. Tanah - Lubok China	2.3625556 102.0961944	T1-1
MR314	3	33		Jalan Sg. Udang - Ayer Keroh	2.2869802 102.2666752	T1-1
MR315	3	138		Jalan Masjid Tanah - Kuala Linggi	2.3658549 102.0624745	K2-2

Melaka Tengah

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
MR101	17,941	2,613	1800 - 1900	57.1	10.4	0.9	0.4	0.6	30.7	F	2968	1870	R
MR102	21,347	1,942	1600 - 1700	62.6	5.8	2.5	0.5	0.5	28.1	A	2166	5219	-
MR103	48,035	5,227	1700 - 1800	63.5	15.5	5.8	1.2	0.2	13.8	E	6641	7461	2022
MR104	107,969	8,367	0700 - 0800	73.2	7.0	2.4	0.3	0.4	16.9	F	9350	6991	R
MR105	46,804	4,641	1800 - 1900	56.8	16.1	4.3	0.9	0.8	21.1	F	5844	2087	R
MR106	31,905	2,693	1800 - 1900	58.6	20.9	2.0	0.2	0.3	18.0	A	3362	6169	-
MR107	12,458	1,187	1800 - 1900	56.8	13.8	4.1	0.3	0.3	24.8	C	1438	1899	2025
MR108	20,543	2,185	1700 - 1800	53.8	10.8	3.5	0.2	0.3	31.3	F	2560	1991	R
MR109	12,327	1,121	1800 - 1900	53.8	18.5	1.7	0.2	0.3	25.6	A	1369	2466	2068
MR110	66,287	6,447	0700 - 0800	71.7	1.5	2.3	0.3	0.9	23.3	B	6927	10431	-
MR111	64,325	5,186	0700 - 0800	74.1	1.2	2.3	0.3	1.0	21.0	A	5566	10423	NA
MR112	17,031	1,745	1800 - 1900	56.8	4.2	1.2	0.6	0.2	37.1	E	1876	2060	NA
MR113	8,484	760	1800 - 1900	60.3	6.0	3.9	0.6	0.4	28.8	A	865	1949	NA
MR114	21,967	2,305	1700 - 1800	58.5	23.7	2.1	0.1	0.2	15.3	A	2940	7420	NA

Jasin

MR201	4,035	366	0800 - 0900	36.5	15.0	10.8	13.7	1.4	22.7	A	590	1535	2079
MR202	6,052	632	1700 - 1800	55.7	12.0	2.9	0.5	0.6	28.3	A	750	2127	2047
MR203	5,918	718	0700 - 0800	47.5	10.5	13.4	6.6	0.5	21.5	B	1039	1650	-
MR204	7,816	685	1800 - 1900	67.8	7.6	5.8	0.8	1.3	16.7	A	825	2051	-
MR205	6,513	688	0700 - 0800	52.9	8.9	7.3	0.4	1.4	29.1	A	849	1874	2037
MR206	14,823	1,418	1800 - 1900	57.4	5.0	2.2	0.4	0.4	34.6	C	1558	2718	-
MR207	14,966	1,323	0900 - 1000	57.9	4.5	2.8	0.9	0.8	33.1	C	1481	2092	2052
MR208	6,010	724	0700 - 0800	45.0	14.6	19.9	0.3	1.8	18.5	A	1076	2066	2038
MR209	23,104	2,284	0700 - 0800	57.3	14.2	6.6	1.8	0.4	19.7	F	2935	2316	R
MR210	21,083	1,931	1800 - 1900	69.4	8.8	10.8	2.3	4.8	4.0	A	2686	6789	NA

Alor Gajah

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
MR301	17,151	1,728	0800 - 0900	59.2	3.4	3.6	0.5	0.5	32.8	D	1915	2355	2022
MR302	15,343	1,738	0700 - 0800	60.1	9.1	4.1	0.7	0.4	25.6	D	2042	2395	2028
MR303	16,124	1,913	0700 - 0800	57.9	10.4	3.7	1.2	0.5	26.4	E	2280	2340	2020
MR306	15,153	1,480	0700 - 0800	56.6	7.1	9.3	3.2	0.7	23.1	E	1906	1954	2020
MR307	15,840	1,502	1800 - 1900	57.5	3.3	3.8	1.1	0.6	33.8	D	1688	2044	2026
MR309	16,594	1,781	0700 - 0800	64.1	5.2	6.3	0.6	0.4	23.4	E	2079	2296	-
MR310	13,306	1,606	0700 - 0800	60.3	4.6	3.1	0.4	0.2	31.4	D	1774	2052	2034
MR311	15,738	1,427	0700 - 0800	63.9	6.9	5.0	1.1	0.4	22.8	C	1674	2130	2033
MR312	18,558	1,809	0700 - 0800	58.0	13.1	2.9	0.5	0.3	25.1	F	2158	1969	R
MR314	33,382	2,483	0800 - 0900	60.8	9.2	7.0	6.7	1.4	15.0	F	3371	2118	R
MR315	5,111	513	1700 - 1800	55.7	8.5	6.2	2.1	0.0	27.5	A	626	2146	NA

Melaka Tengah

Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
MR101	13,263	14,820	15,908	16,436	14,480	17,926	14,204	15,459	15,787	17,941	1.69	0.27
MR102	25,536	25,430	22,884	30,915	36,495	37,017	21,457	20,943	21,181	21,374	-2.67	0.07
MR103	39,634	37,335	44,607	43,876	51,397	59,399	51,670	51,513	54,227	48,035	3.45	0.46
MR104	93,299	96,793	96,894	92,695	98,086	107,617	109,500	102,894	105,950	107,969	1.72	0.68
MR105	31,681	35,593	34,499	36,848	40,502	39,243	38,462	46,352	48,938	46,804	4.43	0.87
MR106	35,818	39,464	41,988	42,982	47,661	43,702	41,664	41,848	42,818	31,905	-0.40	0.00
MR107	7,579	10,199	11,133	10,888	13,136	12,673	13,108	13,634	14,397	12,458	5.10	0.66
MR108	19,298	19,723	21,897	19,909	24,130	22,430	21,632	22,407	22,958	20,543	1.16	0.21
MR109	10,415	11,968	11,174	10,111	11,317	10,336	11,059	11,782	12,051	12,340	1.22	0.28
MR110	81,156	45,710	84,604	87,011	69,786	48,764	53,327	57,552	54,790	66,287	-2.61	0.15
MR111	NA	NA	NA	NA	NA	NA	NA	NA	NA	64,325	NA	NA
MR112	NA	NA	NA	NA	NA	NA	NA	NA	NA	17,031	NA	NA
MR113	NA	NA	NA	NA	NA	NA	NA	NA	NA	8,484	NA	NA
MR114	NA	NA	NA	NA	NA	NA	NA	NA	NA	21,967	NA	NA

Jasin

MR201	3,260	3,081	2,748	3,091	3,242	2,793	2,850	3,339	3,145	4,035	1.60	-0.22
MR202	3,933	5,187	4,946	5,268	5,701	3,914	5,255	6,421	6,485	6,052	3.86	0.47
MR203	7,672	8,088	6,760	8,257	7,822	5,219	5,977	7,322	7,095	5,918	-2.56	0.28
MR204	10,139	9,958	8,723	9,836	10,337	8,498	8,415	10,643	10,579	7,816	-0.96	0.05
MR205	3,819	4,922	4,818	4,833	5,477	10,186	4,244	5,902	6,159	6,513	4.62	0.15
MR206	15,679	16,426	17,044	16,779	17,112	17,182	15,640	16,329	16,525	14,823	-0.54	0.11
MR207	12,735	13,703	15,204	10,377	12,579	11,281	13,772	13,774	13,780	14,966	1.05	0.07
MR208	4,574	5,511	4,691	6,539	7,386	6,756	5,554	6,882	7,243	6,010	3.46	0.32
MR209	16,113	18,495	20,079	20,578	21,005	22,178	22,827	22,858	23,891	23,104	3.67	0.85
MR210	NA	NA	NA	NA	NA	NA	NA	NA	NA	21,038	NA	NA

Alor Gajah

Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
MR301	11,472	11,465	11,170	15,715	15,665	16,885	19,662	17,780	19,098	17,151	6.22	0.71
MR302	13,817	12,885	12,949	14,712	14,800	19,349	15,162	14,804	15,190	15,343	1.89	0.20
MR303	10,734	13,780	13,566	18,595	18,689	20,287	18,955	19,005	20,993	16,124	5.11	0.44
MR306	10,456	10,387	11,237	12,433	11,790	12,970	12,397	15,147	15,853	15,153	4.78	0.88
MR307	13,184	13,117	13,487	14,868	14,933	14,896	16,319	15,877	16,397	15,840	2.61	0.84
MR309	19,111	18,400	20,074	19,802	18,986	21,167	19,737	19,988	20,245	16,594	-0.32	0.01
MR310	13,868	13,687	14,472	14,115	14,821	16,614	16,589	13,943	14,515	13,306	0.27	0.01
MR311	11,708	11,268	12,676	11,183	13,522	11,579	11,740	11,881	12,155	15,738	1.73	0.27
MR312	12,140	14,922	16,322	16,602	10,867	16,916	17,439	18,320	18,593	18,558	3.96	0.49
MR314	NA	NA	NA	NA	NA	NA	NA	NA	NA	33,382	NA	NA
MR315	NA	NA	NA	NA	NA	NA	NA	NA	NA	5,111	NA	NA



$$y = 4E+06e^{-0.024x} \quad | \quad R^2 = 0.58$$

Normal Growth = 1.46%

Yearly 16-Hour Traffic Volume (2010-2019) & Normal Traffic Growth with Exponential Trendline for the Year 2019 in Melaka

**3.48%
DECREASE**

There are 35 census stations in Melaka. From the yearly 16-hour traffic volume, there is a slight decrease for the number of vehicles by 3.48% from the year 2018 to 2019 which is equivalent to 22,339 vehicles.

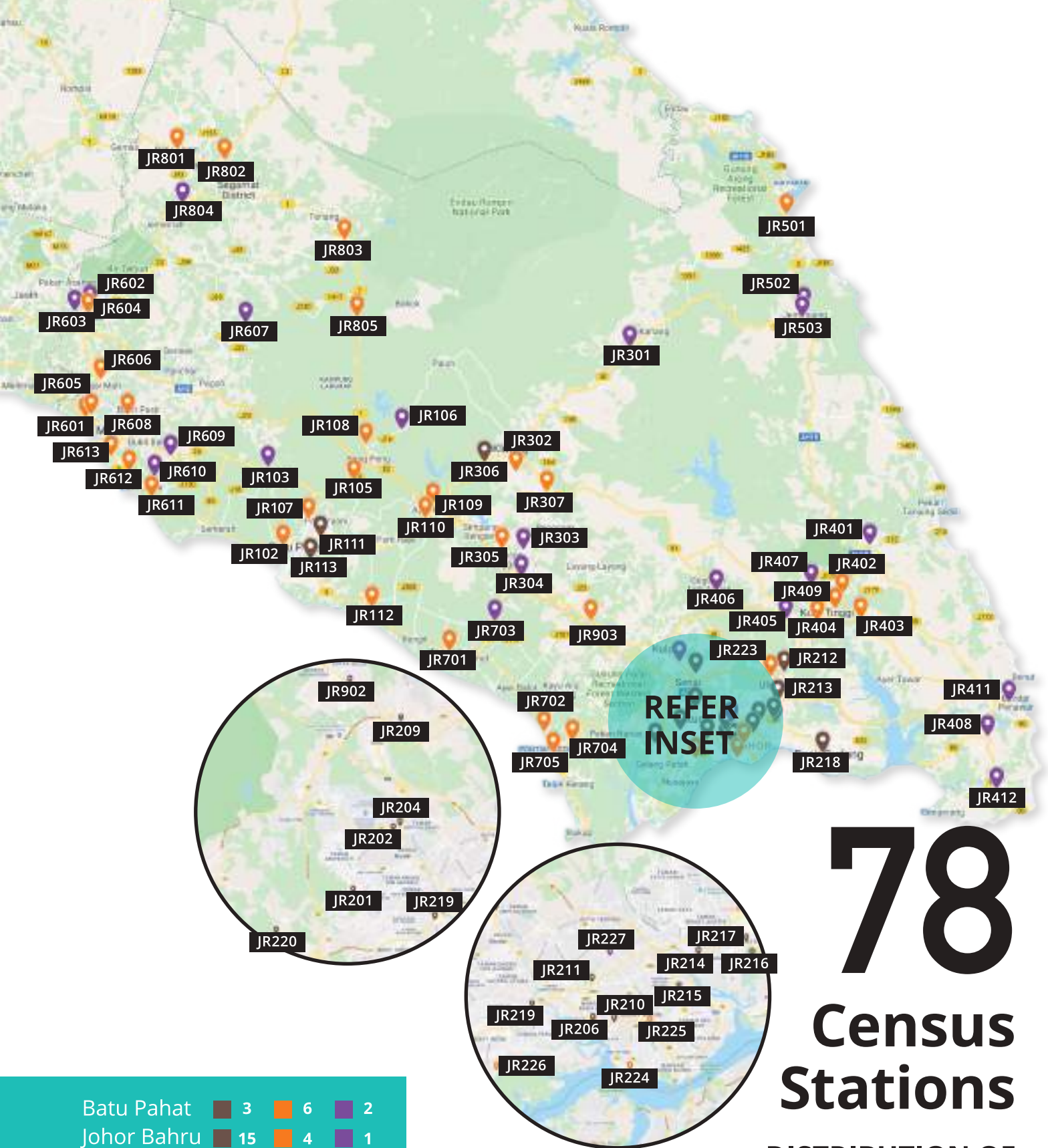


For the year 2019, the observed traffic growth rate for the state of Melaka is 1.46%. The basis of traffic growth rate record is to be used as a projection indicator of subsequent traffic growth rate for road forethought as well as for the expansion of current and new roads in Melaka.



JOHOR

*Jambatan Permas Jaya
Jalan Permas Jaya - Pasir Gudang (FT035)*

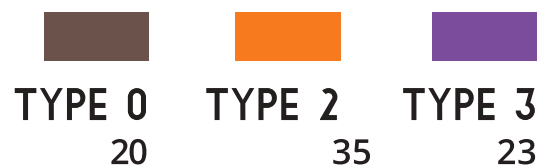
































REFER
INSET

78 Census Stations

DISTRIBUTION OF
SURVEY STATIONS

JOHOR



Batu Pahat	 3	 6	 2
Johor Bahru	 15	 4	 1
Kulai Jaya	 1	 1	 1
Kluang	 1	 3	 3
Kota Tinggi	 0	 4	 7
Mersing	 0	 1	 2
Ledang	 0	 4	 2
Muar	 0	 4	 3
Pontian	 0	 4	 1
Segamat	 0	 4	 1

Batu Pahat

Census Station Number	Survey Type	Route Number	KM	Description Of Location	GPS Coordinate (WGS84) (Latitude, Longitude)	Type Of Carriageway
JR102	2	5		Batu Pahat - Muar	1.8499100 102.9016200	T1-1
JR103	3	J128		Jalan Kangkar Senangar	1.9935500 102.8739800	T1-1
JR105	2	24		Muar - Yong Peng	1.9691200 103.0321500	T1-1
JR106	3	J16		Yong Peng - Kangkar Baru	2.0625833 103.1209167	T1-1
JR107	2	J13		Jalan Tongkang Pechah	1.8995000 102.9487500	T1-1
JR108	2	1		Yong Peng - Segamat	2.0363120 103.0546030	T1-1
JR109	2	1		Ayer Hitam - Yong Peng	1.9265390 103.1766670	T1-1
JR110	2	50		Batu Pahat - Ayer Hitam	1.8997700 103.1636000	T2-2
JR111	0	50		Batu Pahat - Ayer Hitam	1.8660500 102.9713000	K2-2
JR112	2	5		Pontian - Batu Pahat (Senggarang)	1.7363800 103.0657500	T1-1
JR113	0	5		Pontian - Batu Pahat	1.8252700 102.9535000	T1-1

Johor Bahru

JR201	0	J4		Johor Bahru - Gelang Patah/ Pendas	1.5115556 103.6300278	K2-2
JR202	0	5		Johor Bahru - Pontian	1.5487200 103.6538800	K2-2
JR204	0	1		Tambak Johor - Senai	1.5517400 103.6580200	K3-3
JR206	0	1		Tambak Johor - Senai (Skudai Kiri)	1.4879167 103.7136111	K3-3
JR210	0	1		Tambak Johor - Senai	1.4876667 103.7258889	K2-2
JR211	0	17		Jalan Pelabuhan Pasir Gudang	1.5105600 103.7131400	K2-2
JR212	0	3		Johor Bahru - Endau	1.6194520 103.8202530	K2-2
JR213	0	3		Johor Bahru - Endau	1.5658880 103.8086840	K2-3
JR214	0	3		Johor Bahru - Endau	1.5261450 103.7739010	K3-3
JR215	0	3		Johor Bahru - Endau	1.5060000 103.7628889	K3-3
JR216	0	J10		Johor Bahru - Masai	1.5252840 103.8046950	K2-2
JR217	0	17		Jalan Pelabuhan Pasir Gudang	1.5334740 103.8011620	K3-3
JR218	0	17		Jalan Pelabuhan Pasir Gudang	1.4700200 103.8908800	K2-2
JR219	0	17		Jalan Pelabuhan Pasir Gudang	1.4957200 103.6788100	K4-4
JR220	0	J7		Ulu Choh - Gelang Patah	1.4873600 103.5840400	K2-2
JR223	2	1375		Jalan Felde Ulu Tebrau	1.6105300 103.7963100	T1-1
JR224	2	J1		Jalan Bertingkat Skudai	1.4605900 103.7348800	K3-3
JR225	2	1		Jalan Tun Abdul Razak	1.4865000 103.7462900	K2-2
JR226	2	52		Lebuhraya Pesisir Pantai Iskandar	1.4599280 103.6586300	K3-3
JR227	3	J3		Jalan Kempas Baru	1.5256300 103.7232200	T1-1

Kulai Jaya

JR209	0	16		Jalan Lapangan Terbang	1.6142900 103.6586200	K2-3
JR902	3	1		Senai Highway	1.6372100 103.6279500	K2-2
JR903	2	1		Jalan Kulai - Sedenak	1.7118200 103.4659300	T1-1

Kluang

Census Station Number	Survey Type	Route Number	KM	Description Of Location	GPS Coordinate (WGS84) (Latitude, Longitude)	Type Of Carriageway
JR301	3	50		Kluang - Jemaluang (Kahang)	2.2133600 103.5374800	K2-2
JR302	2	J25		Kluang Renggam	1.9858000 103.3289500	T2-2
JR303	3	J26		Renggam - Simpang Renggam	1.8431470 103.3432020	T2-2
JR304	3	1		Johor Bahru - Ayer Hitam	1.7931880 103.3388800	T1-2
JR305	2	1		Johor Bahru - Ayer Hitam	1.8445620 103.3036910	T1-1
JR306	0	50		Ayer Hitam - Kluang	2.0033000 103.2720670	T2-2
JR307	2	91		Kota Tinggi - Kluang	1.9483120 103.3853100	T1-1

Kota Tinggi

JR401	3	99		Jalan Lok Heng	1.8512800 103.9771600	T1-1
JR402	2	3		Kota Tinggi - Mersing	1.7610000 103.9260000	T2-2
JR403	2	92		Kota Tinggi - Sungai Rengit	1.7166940 103.9608330	T1-1
JR404	2	3		Johor Bahru - Kota Tinggi	1.7127300 103.8807500	T1-1
JR405	3	94		Kota Tinggi - Kulai	1.7152500 103.8237300	T1-1
JR406	3	93		Jalan Sungai Sayong	1.7678300 103.6952700	T1-1
JR407	3	91		Kota Tinggi - Kluang	1.7785900 103.8708900	K2-2
JR408	3	89		Jalan Tanjung Belungkor	1.5002600 104.1933600	T1-1
JR409	2	3		Johor Bahru - Kota Tinggi (Bypass)	1.7340560 103.9137500	T1-1
JR411	3	FT90		Bandar Penawar	1.5636400 104.2324400	T1-1
JR412	3	FT92		Jalan Kota Tinggi - Pengerang	1.4042100 104.2095800	K2-2

Mersing

JR501	2	3		Johor Bahru - Endau	2.4563120 103.8254090	T1-1
JR502	3	3		Johor Bahru - Endau	2.2844722 103.8570556	T1-1
JR503	3	3		Johor Bahru - Endau	2.2680833 103.8543611	T2-2

Ledang

JR601	2	5		Muar - Melaka	2.0843980 102.5402470	K2-2
JR602	3	J123		Tangkak - Bekoh	2.2891290 102.5496090	T1-1
JR603	3	J21		Tangkak - Melaka	2.2796389 102.5204167	T1-1
JR604	2	23		Muar - Segamat (Tangkak)	2.2750750 102.5456670	T1-1
JR605	2	23		Muar - Segamat (Parit Bunga)	2.0893000 102.5508600	T1-1
JR606	2	J33		Sungai Mati - Bukit Gambir	2.1539900 102.5689660	T1-1

Muar

Census Station Number	Survey Type	Route Number	KM	Description Of Location	GPS Coordinate (WGS84) (Latitude, Longitude)	Type Of Carriageway
JR607	3	J32		Muar - Labis (Lenga)	2.2569420 102.8338760	T1-1
JR608	2	J32		Muar - Labis (Bukit Pasir)	2.0901950 102.6173340	T1-1
JR609	3	24		Muar - Yong Peng	2.0147500 102.6961080	T1-1
JR610	3	J131		Parit Jawa - Air Manis	1.9774510 102.6674770	T1-1
JR611	2	5		Batu Pahat - Muar (Parit Jamil)	1.9387870 102.6612880	T1-1
JR612	2	J31		Jalan Temenggong Ahmad	1.9850833 102.6201389	T1-1
JR613	2	5		Batu Pahat - Muar (Parit Haji Ali)	2.0132900 102.5871600	T1-1

Pontian

JR701	2	5		Pontian - Batu Pahat (Tampok)	1.6555600 103.2071500	T1-1
JR702	2	5		Pontian - Batu Pahat	1.5094700 103.3794700	K1-1
JR703	3	96		Simpang Renggam - Benut	1.7116600 103.2913200	T1-1
JR704	2	5		Johor Bahru - Pontian Kechil	1.4925080 103.4315080	T1-1
JR705	2	95		Johor Bahru - Pontian Kechil - Kukup	1.4689300 103.3978500	T1-1

Segamat

JR801	2	1		Johor Bahru - Segamat - Batu Enam	2.5754670 102.7084040	T1-1
JR802	2	12		Lebuhraya Tun Razak	2.5558020 102.7955400	T1-1
JR803	2	1		Johor Bahru - Segamat (Labis)	2.4095640 103.0151640	T1-1
JR804	3	23		Johor Bahru - Segamat (Jementah)	2.4764722 102.7181667	K2-2
JR805	2	1		Jalan Labis - Yong Peng	2.2692000 103.0385400	T1-1

Batu Pahat

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
JR102	24,753	2,142	1700 - 1800	65.4	10.0	4.8	1.5	1.0	17.4	F	2616	2611	R
JR103	7,959	851	1700 - 1800	41.7	10.8	12.0	6.4	0.9	28.2	C	1220	1596	-
JR105	16,114	1,606	1700 - 1800	61.2	11.0	7.7	6.5	0.3	13.3	F	2189	2151	R
JR106	4,696	366	1700 - 1800	54.1	1.8	5.3	1.1	3.8	33.9	A	438	2541	-
JR107	33,103	3,119	1900 - 2000	65.2	9.4	6.7	1.7	0.3	16.7	F	3849	2396	R
JR108	11,702	996	1200 - 1300	50.0	16.8	10.7	7.6	1.0	14.0	C	1494	2113	-
JR109	9,845	814	1300 - 1400	65.9	4.9	9.5	3.5	5.3	10.9	A	1113	2130	2058
JR110	31,940	2,572	1700 - 1800	72.7	1.4	5.0	1.1	3.0	16.8	A	3010	6601	2050
JR111	53,376	4,259	1700 - 1800	73.9	4.9	4.6	0.8	2.3	13.5	C	5026	6686	-
JR112	13,810	1,211	1800 - 1900	62.1	9.6	8.7	1.9	0.8	16.9	D	1551	1935	-
JR113	38,221	3,186	1900 - 2000	71.9	7.4	4.5	0.8	0.3	14.9	F	3714	1987	R

Johor Bahru

JR201	41,350	3,609	1800 - 1900	58.4	11.0	10.2	0.5	1.6	18.3	C	4707	6414	2033
JR202	126,034	10,172	0700 - 0800	76.9	7.2	3.1	0.7	0.9	11.2	F	11703	7641	R
JR204	88,738	6,863	0700 - 0800	72.9	3.6	6.7	1.2	4.9	10.7	B	8637	14183	-
JR206	131,369	9,182	1600 - 1700	80.0	1.0	1.9	0.6	2.0	14.4	E	10025	10329	-
JR210	104,212	7,222	1700 - 1800	59.2	0.6	1.7	0.1	1.7	36.7	F	7718	7648	R
JR211	95,191	6,609	1800 - 1900	74.0	5.6	6.2	1.6	2.6	10.0	F	8155	6518	R
JR212	40,650	3,529	1800 - 1900	73.7	4.4	5.1	1.2	3.2	12.4	B	4261	6578	2063
JR213	113,298	8,713	1700 - 1800	77.3	1.8	4.8	1.1	2.9	12.2	F	10191	8272	R
JR214	142,888	10,057	1700 - 1800	77.0	5.2	4.4	0.7	1.8	10.9	F	11745	10105	R
JR215	68,706	5,093	1800 - 1900	77.7	4.5	3.1	0.4	1.3	12.9	A	5734	11335	-
JR216	25,430	2,220	1800 - 1900	72.7	0.5	1.0	0.0	0.5	25.3	A	2286	7095	-
JR217	126,765	10,534	0700 - 0800	59.2	1.3	3.9	1.3	4.8	29.6	F	12562	10916	R
JR218	41,754	4,886	0700 - 0800	53.1	1.4	4.0	1.5	9.6	30.4	F	6332	6256	R
JR219	96,374	7,696	1800 - 1900	74.4	1.3	2.0	0.6	1.1	20.6	A	8283	14974	-

Johor Bahru

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
JR220	28,515	2,289	0700 - 0800	71.3	4.9	7.0	0.8	2.6	13.3	A	2801	6515	2030
JR223	18,001	2,306	0700 - 0800	69.5	4.0	5.3	3.2	0.5	17.5	F	2752	2312	R
JR224	65,516	5,860	1800 - 1900	51.9	0.6	2.2	1.3	1.5	42.4	A	6429	11190	NA
JR225	78,703	5,576	1800 - 1900	61.5	0.5	1.4	0.1	0.9	35.6	C	5831	7422	NA
JR226	66,410	6,086	1800 - 1900	81.3	0.8	1.8	0.1	1.1	14.9	B	6447	10484	NA
JR227	26,742	2,332	2100 - 2200	58.6	10.2	10.0	2.0	0.4	18.7	F	3036	2166	R

Kulai Jaya

JR209	44,430	4,428	0700 - 0800	68.9	2.7	5.0	2.4	3.5	17.6	A	5400	9019	2026
JR902	61,166	4,261	1400 - 1500	77.0	0.9	2.1	0.2	1.8	18.0	B	4601	6919	NA
JR903	11,386	1,098	1600 - 1700	60.9	11.3	4.9	6.7	0.5	15.7	D	1462	1823	NA

Kluang

JR301	8,936	755	1400 - 1500	45.7	7.6	10.3	4.5	11.6	20.3	A	1172	5698	2122
JR302	15,161	1,868	0700 - 0800	63.9	8.2	4.2	2.8	0.8	20.1	A	2274	6679	-
JR303	12,806	1,090	1400 - 1500	65.6	1.9	5.7	2.2	4.9	19.7	A	1359	6380	2084
JR304	9,518	761	0700 - 0800	41.5	13.5	18.9	11.3	1.0	13.8	A	1266	4574	2053
JR305	15,543	1,320	1700 - 1800	47.3	1.5	3.4	0.2	2.2	45.4	A	1471	2645	2038
JR306	36,704	3,097	1700 - 1800	72.1	4.0	7.4	1.5	3.5	11.6	B	3874	6404	2050
JR307	7,591	668	1700 - 1800	74.9	2.9	4.7	2.8	3.7	11.1	A	821	1838	-

Kota Tinggi

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
JR401	6,691	645	1700 - 1800	46.6	12.8	5.1	4.0	0.4	31.0	A	834	1739	-
JR402	18,160	1,605	1700 - 1800	58.7	17.5	5.6	6.1	0.9	11.1	F	2247	2237	R
JR403	15,518	1,416	1700 - 1800	69.0	9.1	5.3	2.4	0.6	13.6	D	1740	2044	2035
JR404	17,838	1,502	0700 - 0800	76.4	6.7	4.2	1.0	0.9	10.8	C	1755	2348	-
JR405	6,746	616	1500 - 1600	65.3	10.7	5.9	3.9	1.0	13.1	A	797	2173	-
JR406	6,469	814	0700 - 0800	54.0	8.0	6.3	7.0	1.2	23.5	A	1089	2202	2090
JR407	6,695	525	1500 - 1600	64.6	1.3	3.7	0.2	1.7	28.4	A	582	6813	2186
JR408	4,932	521	1800 - 1900	63.1	10.4	8.3	4.8	1.2	12.1	A	704	1811	2066
JR409	20,820	1,584	1700 - 1800	64.8	9.6	7.5	8.3	0.7	9.1	F	2198	1899	R
JR411	10,534	1,737	1600 - 1700	61.4	20.2	5.8	0.2	0.9	11.5	F	2278	1938	R
JR412	13,960	1,673	1800 - 1900	56.0	14.3	15.4	1.4	3.7	9.2	A	2472	5972	NA

Mersing

JR501	14,442	1,263	1500 - 1600	57.0	8.2	5.3	3.2	1.1	25.2	C	1578	2195	2052
JR502	4,653	477	1700 - 1800	68.7	5.0	9.3	7.6	1.4	7.9	A	654	2035	-
JR503	4,252	393	1500 - 1600	53.4	20.9	8.9	9.2	1.2	6.4	A	609	6505	-

Ledang

JR601	25,054	2,226	1800 - 1900	55.1	1.5	3.4	0.5	1.6	37.8	A	2467	7431	2051
JR602	3,943	375	1500 - 1600	44.7	15.5	9.5	1.9	0.0	28.4	A	500	2213	-
JR603	10,962	954	1800 - 1900	59.5	4.7	7.1	1.8	3.1	23.8	B	1195	1949	-
JR604	21,855	2,421	0700 - 0800	52.3	12.0	4.4	1.9	1.1	28.2	F	3019	2293	R
JR605	42,321	3,932	1500 - 1600	61.9	11.9	5.4	3.4	0.7	16.7	F	5041	2557	R
JR606	22,571	2,279	0700 - 0800	66.3	10.1	4.1	0.8	0.6	18.0	F	2715	2334	R

Muar

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
JR607	3,869	368	1700 - 1800	51.0	8.6	4.2	0.8	0.4	35.1	A	431	2391	-
JR608	16,273	1,384	0700 - 0800	57.5	8.6	9.5	4.4	0.9	19.1	E	1847	1927	-
JR609	7,296	675	0700 - 0800	57.0	11.5	13.5	4.1	0.1	13.9	A	945	1880	2088
JR610	5,138	482	1800 - 1900	49.7	9.1	10.1	5.0	0.1	26.0	A	648	1921	2048
JR611	16,115	1,271	1700 - 1800	59.9	11.9	5.8	1.0	0.8	20.6	C	1580	2055	2030
JR612	14,675	1,345	1700 - 1800	64.0	6.4	5.3	1.1	0.7	22.6	C	1585	2066	2025
JR613	10,006	904	1800 - 1900	67.5	6.7	4.8	1.1	0.3	19.6	A	1055	2082	2030

Pontian

JR701	11,200	1,194	1700 - 1800	59.4	8.0	7.5	2.4	0.8	21.8	C	1501	1998	2044
JR702	14,607	1,486	1500 - 1600	69.4	7.7	5.9	1.5	0.6	14.8	B	1795	2851	-
JR703	6,764	896	1700 - 1800	55.0	7.5	7.6	2.4	4.1	23.6	C	1180	1670	2048
JR704	11,367	978	1800 - 1900	67.4	9.0	6.4	2.8	1.0	13.4	B	1234	1981	-
JR705	16,504	1,354	1700 - 1800	75.2	4.5	2.2	1.1	0.4	16.6	C	1500	1972	-

Segamat

JR801	16,824	1,385	1700 - 1800	49.1	11.1	7.3	6.5	0.5	25.4	E	1885	2106	2030
JR802	13,865	1,157	1700 - 1800	55.5	19.0	8.6	6.2	0.7	10.1	D	1683	2087	2041
JR803	12,263	1,109	1700 - 1800	63.1	14.1	6.6	5.4	1.0	9.7	C	1519	2130	2042
JR804	10,724	986	0700 - 0800	64.1	2.8	5.5	0.5	4.3	22.8	A	1190	6528	-
JR805	7,123	825	1800 - 1900	57.4	17.5	4.2	10.0	1.6	9.3	A	1213	2079	NA

Batu Pahat

Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
JR102	20,237	15,020	21,881	25,305	21,429	17,176	18,177	23,564	23,698	24,753	2.52	0.20
JR103	6,539	15,428	7,866	8,531	7,183	8,032	8,433	8,359	8,480	7,959	-1.24	0.03
JR105	14,770	15,230	15,993	16,189	14,695	16,282	14,554	15,723	15,778	16,114	0.44	0.10
JR106	3,144	3,666	4,035	4,419	3,561	2,495	3,379	3,092	3,112	4,696	-0.02	-0.01
JR107	24,961	28,189	29,330	30,117	27,119	24,410	27,461	36,968	37,852	33,103	3.26	0.45
JR108	12,262	13,025	12,369	11,628	11,521	11,985	9,733	11,199	11,274	11,702	-1.47	0.36
JR109	9,722	9,418	10,184	10,507	10,339	10,618	11,312	11,725	11,980	9,845	1.67	0.38
JR110	22,463	24,236	25,758	25,816	23,090	27,763	28,648	25,790	26,414	31,940	2.59	0.57
JR111	68,097	47,852	74,604	71,408	62,409	66,123	70,098	59,152	61,488	53,376	-0.97	0.04
JR112	34,077	13,505	12,996	12,921	12,867	11,390	12,491	14,800	14,311	13,810	-4.42	0.27
JR113	30,932	33,455	33,260	34,935	42,064	41,264	36,566	43,070	45,438	38,221	3.31	0.56

Johor Bahru

JR201	36,243	32,527	35,398	40,123	37,859	34,273	44,524	39,175	41,513	41,350	2.19	0.46
JR202	100,402	96,248	126,786	126,934	126,242	115,530	127,658	115,480	120,641	126,034	-1.87	0.31
JR204	101,856	107,591	104,684	114,704	105,441	108,858	110,498	145,079	149,199	88,738	1.58	0.11
JR206	181,637	167,933	171,102	168,344	159,157	122,004	154,587	155,553	151,353	131,369	-2.81	0.54
JR210	153,246	142,980	153,822	134,361	145,134	140,621	129,419	141,059	141,059	104,212	-2.50	0.47
JR211	95,655	101,081	110,548	112,581	94,216	98,601	88,895	101,498	102,817	95,191	-0.62	0.07
JR212	36,424	34,111	36,709	36,170	34,325	29,664	35,904	36,328	35,601	40,650	0.65	0.08
JR213	124,581	138,535	124,847	116,207	138,276	120,147	120,091	117,880	119,625	113,298	-1.34	0.34
JR214	146,961	118,971	144,677	145,556	144,552	132,776	127,342	138,837	139,767	142,888	0.11	0.00
JR215	95,603	117,179	59,861	60,912	66,720	77,496	66,794	68,177	68,150	68,706	-3.45	0.30
JR216	34,422	32,865	70,925	34,264	31,640	54,830	31,327	29,216	29,377	25,430	-4.65	0.10
JR217	129,556	116,193	72,235	102,406	109,088	61,369	105,760	119,864	117,346	126,765	1.17	0.00
JR218	49,309	40,428	47,563	26,552	26,502	29,045	43,134	42,306	40,952	41,754	-0.27	0.00
JR219	116,486	131,153	123,232	117,251	102,915	107,704	133,704	115,220	117,777	96,374	-1.43	0.16
JR220	22,276	26,675	27,101	40,304	43,880	45,657	57,300	56,466	67,900	28,515	8.20	0.29
JR223	16,529	18,747	18,383	18,371	15,701	17,418	17,707	17,882	18,002	18,001	0.21	0.01
JR224	NA	NA	NA	NA	NA	NA	NA	NA	NA	65,516	NA	NA

Johor Bahru

Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
JR225	NA	NA	NA	NA	NA	NA	NA	NA	NA	78,703	NA	NA
JR226	NA	NA	NA	NA	NA	NA	NA	NA	NA	66,410	NA	NA
JR227	NA	NA	NA	NA	NA	NA	NA	NA	NA	26,742	NA	NA

Kulai Jaya

JR209	26,689	28,084	30,378	43,167	40,454	60,232	30,713	59,668	64,453	44,430	7.97	0.44
JR902	NA	NA	NA	NA	NA	NA	NA	NA	NA	61,166	NA	NA
JR903	NA	NA	NA	NA	NA	NA	NA	NA	NA	11,386	NA	NA

Kluang

JR301	5,210	5,208	5,432	6,223	5,913	5,742	5,249	4,563	4,593	4,624	-2.00	0.32
JR302	16,412	15,217	15,149	13,923	15,070	13,822	14,273	13,349	13,562	15,161	-1.31	0.38
JR303	9,322	7,769	9,269	8,101	7,941	7,802	10,676	8,572	8,547	12,806	2.41	0.24
JR304	7,705	7,469	7,889	8,496	8,481	9,189	12,179	9,766	10,203	9,518	3.83	0.51
JR305	14,810	14,894	15,398	13,911	15,847	17,359	17,598	20,602	21,216	15,543	3.13	0.43
JR306	34,964	36,952	39,674	38,053	38,366	41,632	41,936	43,771	45,045	36,704	1.63	0.35
JR307	8,479	8,336	8,293	8,960	11,589	9,898	8,848	8,816	9,000	7,591	-0.21	0.00

Kota Tinggi

JR401	6,676	16,043	7,372	7,859	6,704	5,809	6,948	7,290	6,663	6,691	-4.06	0.17
JR402	17,768	17,026	19,618	15,404	18,095	13,424	16,602	17,616	17,734	18,160	-0.08	0.00
JR403	15,504	16,044	15,672	15,644	17,770	18,115	17,125	17,553	17,811	15,518	0.97	0.19
JR404	20,302	20,106	23,273	22,103	19,750	19,745	18,984	17,601	16,527	17,838	-2.66	0.57
JR405	10,089	6,992	8,332	6,556	5,293	8,471	5,666	6,004	6,044	6,746	-3.79	0.36
JR406	6,672	7,703	6,535	5,908	6,272	6,002	7,285	7,185	7,233	6,469	0.21	0.00
JR407	4,856	4,772	4,604	4,535	4,888	3,521	4,228	4,721	4,753	6,695	1.49	0.12
JR408	3,784	4,042	4,514	4,926	4,038	5,349	4,271	4,594	4,672	4,932	2.02	0.29
JR409	15,869	14,588	13,322	15,017	13,993	15,827	17,060	18,516	18,699	20,820	3.84	0.72
JR411	NA	NA	NA	NA	NA	NA	NA	NA	NA	10,534	NA	NA
JR412	NA	NA	NA	NA	NA	NA	NA	NA	NA	13,960	NA	NA

Mersing

Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
JR501	15,598	13,445	13,411	14,412	14,391	14,672	15,336	15,599	15,459	14,442	0.76	0.16
JR502	4,590	5,073	7,080	7,544	5,533	5,508	5,222	4,952	4,968	4,653	-1.77	0.08
JR503	4,633	4,481	4,490	4,720	4,143	2,656	4,969	4,349	4,378	4,252	-0.84	0.02

Ledang

JR603	12,793	11,166	9,917	11,017	10,961	8,938	8,947	11,105	11,360	10,962	-0.93	0.08
JR601	20,582	20,376	19,157	16,513	18,558	24,358	28,809	23,293	23,696	25,054	3.48	0.41
JR602	5,022	5,230	4,690	4,579	4,823	4,379	4,301	3,562	3,494	3,943	-4.04	0.80
JR604	12,866	12,493	14,246	14,989	17,714	15,846	16,136	24,567	25,790	21,855	7.68	0.77
JR605	31,746	26,870	25,276	26,589	22,197	30,888	29,672	62,864	64,573	42,321	8.45	0.48
JR606	15,519	15,162	19,072	19,434	16,346	19,916	14,847	18,922	19,845	22,571	2.79	0.38

Muar

JR607	4,231	4,566	4,227	3,835	11,939	15,688	3,493	3,347	3,270	3,869	-2.62	-0.09
JR608	17,594	17,384	16,027	16,327	11,024	9,194	17,438	17,440	16,725	16,273	-0.32	-0.01
JR609	7,121	6,063	6,871	7,753	7,046	7,178	6,282	6,887	6,933	7,296	0.34	0.02
JR610	3,686	4,282	5,505	3,064	4,570	5,450	4,597	5,384	5,682	5,138	3.79	0.34
JR611	12,798	12,066	15,618	15,756	13,869	13,192	14,518	15,960	16,661	16,115	2.51	0.46
JR612	10,031	9,743	12,852	10,729	13,120	11,390	13,833	14,785	15,335	14,675	4.80	0.76
JR613	6,283	6,394	8,142	7,617	8,866	10,881	12,115	9,729	10,359	10,006	6.09	0.60

Pontian

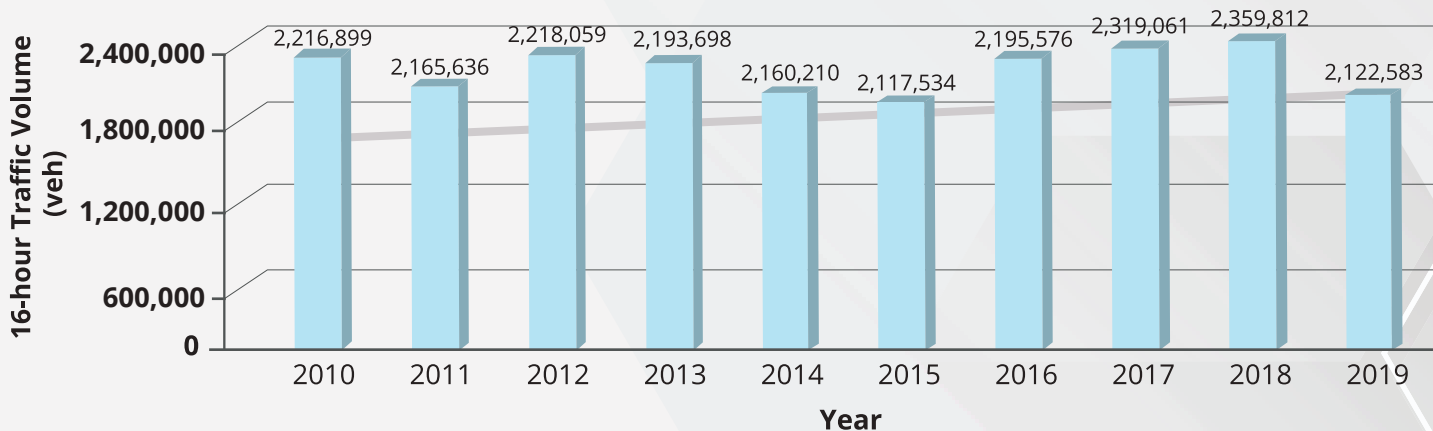
Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
JR701	10,068	12,845	10,080	11,176	10,357	12,605	12,039	11,966	12,276	11,200	1.16	0.13
JR702	14,406	12,125	16,772	15,061	14,678	15,945	16,690	13,050	12,985	14,607	-0.16	0.00
JR703	6,385	6,436	6,455	6,680	6,669	9,015	7,644	6,747	6,937	6,764	1.20	0.09
JR704	18,006	16,482	15,967	15,658	14,920	14,102	14,480	12,367	11,835	11,367	-4.87	0.95
JR705	20,268	18,103	17,452	18,948	17,533	16,039	17,762	17,043	16,873	16,504	-1.66	0.55

Segamat

JR801	15,237	15,781	15,875	16,826	16,800	17,751	15,954	16,518	16,819	16,824	0.87	0.34
JR802	12,968	13,938	14,985	14,283	14,595	14,834	14,421	13,662	13,869	13,865	0.09	0.00
JR803	11,067	12,085	12,418	12,342	11,718	13,014	13,110	13,383	13,691	12,263	1.49	0.48
JR804	9,900	9,561	10,614	12,257	9,462	8,637	7,839	7,942	7,902	10,724	-2.12	0.16
JR805	NA	NA	NA	NA	NA	NA	NA	NA	NA	7,123	NA	NA

YEAR 16-HOUR TRAFFIC VOLUME (2010-2019)

Johor



$$y = 2E+06e^{0.0025x} \quad | \quad R^2 = 0.05$$

Normal Growth = 0.25%

Yearly 16-Hour Traffic Volume (2010-2019 & Normal Traffic Growth with Exponential Trendline for the Year 2019 in Johor

**10.05%
DECREASE**

There are 78 census stations in Johor. The pattern of 16-hour traffic volume has fluctuated since the year 2010 until the year 2018. Between the year 2018 and 2019, there is a difference between the traffic volumes by 10.05% which shows that the number of vehicles in the year 2019 has decreased by 237,229.

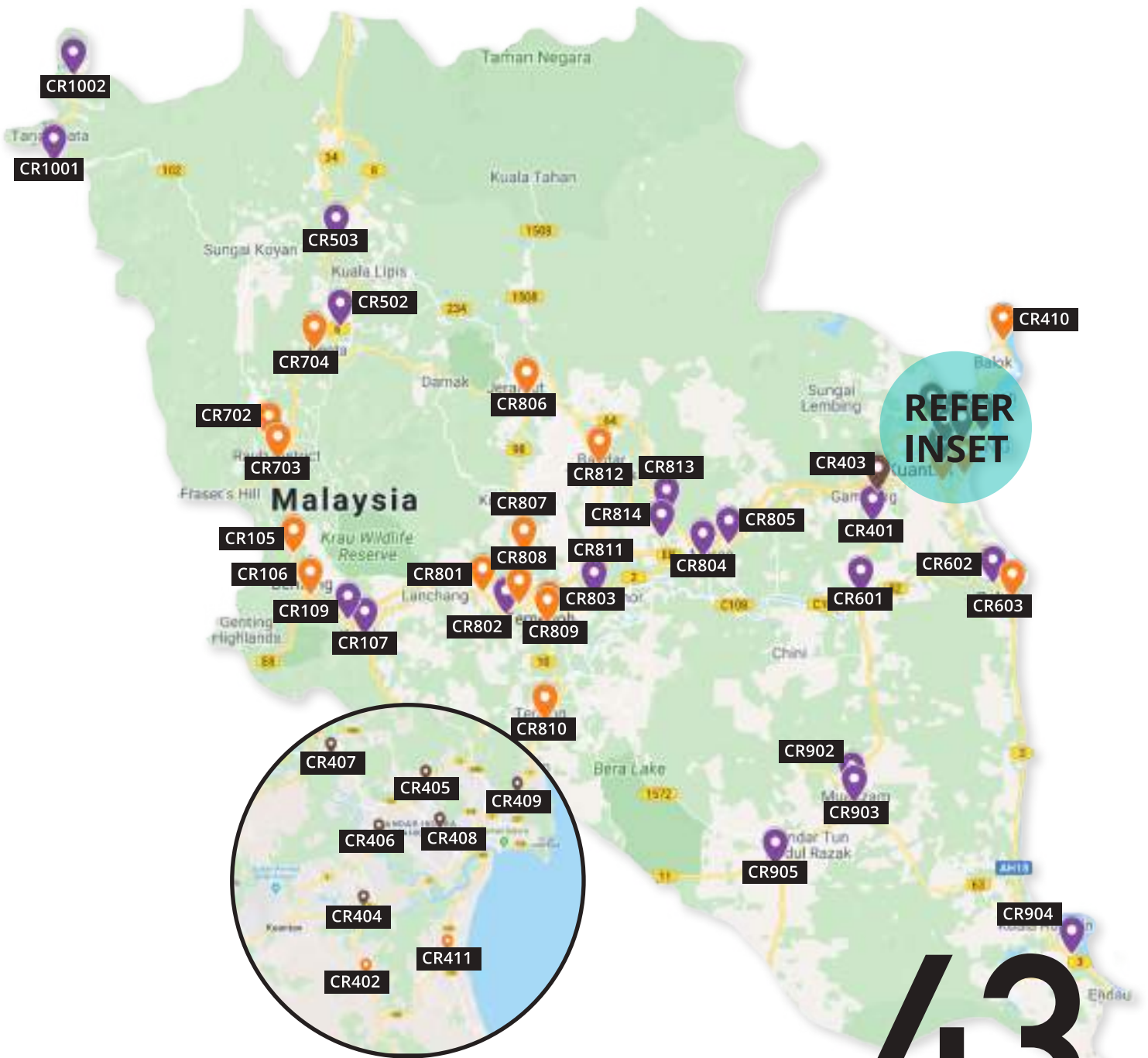


For the year 2019, the observed traffic growth rate for the state of Johor is 0.25%. The basis of traffic growth rate record is to be used as a projection indicator of subsequent traffic growth rate for road forethought as well as for the expansion of current and new roads in Johor.



PAHANG

*Jambatan Sultan Ahmad Shah II
Lebuhraya Pantai Timur (LPT)*



43

Census Stations

DISTRIBUTION OF SURVEY STATIONS

PAHANG

Bentong	0	2	2
Kuantan	7	3	1
Kuala Lipis	0	0	2
Pekan	0	1	2
Raub	0	3	0
Temerloh	0	5	1
Bera	0	1	0
Maran	0	1	5
Jerantut	0	1	0
Rompin	0	0	4
Cameron Highlands	0	0	2

		
TYPE 0	TYPE 2	TYPE 3
7	17	19

Bentong

Census Station Number	Survey Type	Route Number	KM	Description Of Location	GPS Coordinate (WGS84) (Latitude, Longitude)	Type Of Carriageway
CR105	2	8		Jalan K. Lumpur - Sempadan K. Bharu	3.5813056 101.8935000	T1-1
CR106	2	8		Jalan K. Lumpur - Sempadan K. Bharu	3.4949185 101.9277068	T1-1
CR107	3	9		Jalan Karak - Negeri Sembilan	3.4078946 102.0437678	T1-1
CR109	3	1498		Jalan Utama Mempaga	3.4410412 102.0077669	T1-1

Kuantan

CR401	3	12		Kuantan - Segamat	3.6478333 103.1192222	T1-1
CR402	2	3		Pekan - Kuantan	3.7349874 103.2675306	K2-2
CR403	0	2		Kuantan - Maran	3.7138720 103.1306900	K2-2
CR404	0	2		Kuantan - Maran	3.7748098 103.2660294	K2-2
CR405	0	3		Kuantan Bypass (East Bound)	3.8470556 103.3020833	K2-2
CR406	0	3		Kuantan Bypass (West Bound)	3.8160556 103.2748056	K2-2
CR407	0	231		Kuantan-Sungai Lembing	3.8632445 103.2471542	T1-1
CR408	0	231		Kuantan-Sungai Lembing	3.8198600 103.3103080	K2-2
CR409	0	2		Kuantan - Kemaman	3.8404090 103.3551180	K2-2
CR410	2	3		Kuantan - Kemaman (Sg. Ular)	4.0321283 103.3973550	T1-1
CR411	2	183		Kuantan - Tanjung Lumpur - Penor	3.7492010 103.3145910	K2-2

Kuala Lipis

CR502	3	8		Kuantan - Jerantut - Benta - K. Lipis	4.0623154 101.9910956	T1-1
CR503	3	8		K. Lumpur - K. Lipis - Kota Bahru	4.2413611 101.9825833	T1-1

Pekan

CR601	3	12		Pekan - Batu Balik	3.4972890 103.0957420	T1-1
CR602	3	82		Pekan - Batu Balik	3.5181490 103.3760590	T1-1
CR603	2	3		Pekan - Nenas	3.4888244 103.4173619	T1-1

Raub

CR702	2	C5		Raub - Cheroh	3.8238611 101.8412500	T1-1
CR703	2	8		Kuantan - Tranum - Raub	3.7805031 101.8587271	T1-1
CR704	2	8		Kuantan - Benta - Raub	4.0121074 101.9361858	T1-1

Temerloh

Census Station Number	Survey Type	Route Number	KM	Description Of Location	GPS Coordinate (WGS84) (Latitude, Longitude)	Type Of Carriageway
CR801	2	2		Kuantan - Karak	3.5005556 102.2926667	T1-1
CR802	3	2		Mentakab Bypass	3.4534450 102.3442080	T1-1
CR803	2	2		Kuantan - Temerloh	3.4458056 102.4333611	T1-1
CR807	2	98		Kuantan - Temerloh - Jerantut	3.5831989 102.3818693	T1-1
CR808	2	87		Kuantan - Mentakab	3.4738791 102.3716507	K2-2
CR809	2	10		Kuantan - Temerloh - Triang	3.4345789 102.4322408	T1-1

Maran

CR804	3	2		Kuantan - Maran	3.5731847 102.7602639	T1-1
CR805	3	2		Kuantan - Maran	3.6007450 102.8163207	T1-1
CR811	3	83		Kuantan - Maran - Jerantut	3.4927222 102.5308889	T1-1
CR812	2	83		Jerantut - Maran	3.7720000 102.5416944	T1-1
CR813	3	64		Jalan Jerantut - Benta	3.6662400 102.6850800	T1-1
CR814	3	62		Jalan Bandar Pusat Jengka	3.6159660 102.6715667	T1-1

Jerantut

CR806	2	98		Jalan Temerloh - Jerantut	3.9161354 102.3859215	T1-1
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Bera

CR810	2	10		Kuantan - Temerloh - Kemayan	3.2270337 102.4249820	T1-1
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Rompin

CR902	3	12		Kuantan - Segamat	3.0832677 103.0764313	T1-1
CR903	3	63		Bkt. Ibam - Rompin	3.0549248 103.0806782	T1-1
CR904	3	3		Kuantan - Rompin - Endau	2.7343890 103.5446390	T1-1
CR905	3	11		Jalan Bahau - Keratong	2.9205600 102.9138479	T1-1

Cameron Highland

CR1001	3	59		Pahang - Perak Borde (Sg Kahzanah Ringlet)	4.4090166 101.3847799	T1-1
CR1002	3	185		Jalan Simpang Pulai - Blue Valley	4.5916874 101.4254552	T1-1

Bentong

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
CR105	12,883	1,200	1500 - 1600	58.4	16.8	10.0	5.0	1.5	8.2	D	1740	2113	-
CR106	21,090	1,994	0700 - 0800	57.9	13.5	5.9	2.6	0.8	19.2	F	2577	1921	R
CR107	4,695	556	1700 - 1800	40.9	21.7	8.3	6.2	0.2	22.7	A	817	1807	2099
CR109	5,049	439	1700 - 1800	53.8	13.3	6.0	5.0	0.7	21.1	A	587	1954	NA

Kuantan

CR403	26,215	2,282	1400 - 1500	71.0	10.0	5.0	5.1	1.0	8.0	A	2959	6481	2098
CR410	33,911	4,002	1800 - 1900	65.2	12.2	5.0	3.7	0.6	13.3	F	5139	2202	R
CR401	9,212	767	1600 - 1700	58.4	16.4	6.8	10.2	0.4	7.8	A	1134	2146	2043
CR402	25,034	3,149	0700 - 0800	63.8	18.1	5.7	3.2	0.7	8.5	A	4234	7082	2025
CR404	66,075	5,758	1700 - 1800	67.6	9.9	3.0	1.8	0.5	17.2	F	6854	6835	R
CR405	69,806	5,785	1800 - 1900	60.6	17.6	9.1	3.5	0.4	8.8	F	8048	6865	R
CR406	58,148	5,310	1700 - 1800	63.6	13.1	5.0	4.6	0.4	13.4	E	6928	7057	2019
CR407	25,967	2,222	1600 - 1700	67.6	10.4	3.9	1.7	0.6	15.8	F	2685	2083	R
CR408	37,369	3,189	1700 - 1800	72.8	11.3	1.6	0.3	0.6	13.5	A	3680	7028	-
CR409	35,717	3,353	1700 - 1800	75.6	5.2	2.1	0.5	0.2	16.5	A	3676	7008	-
CR411	29,411	2,866	0700 - 0800	66.2	9.7	2.6	1.0	0.3	20.2	A	3331	6931	2034

Kuala Lipis

CR502	9,944	1,019	1700 - 1800	70.6	12.4	5.9	3.8	1.2	6.1	B	1337	2222	2036
CR503	8,239	926	1400 - 1500	62.4	10.8	5.5	5.7	1.1	14.4	A	1230	2492	2042

Pekan

CR601	9,335	781	1700 - 1800	60.8	14.6	9.6	9.0	0.4	5.5	A	1155	2047	2023
CR602	4,824	436	1800 - 1900	60.5	13.3	5.0	4.5	0.6	16.1	A	571	2009	2114
CR603	11,748	1,095	1700 - 1800	56.0	11.3	4.2	3.3	0.7	24.5	B	1376	2225	2035

Raub

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
CR702	7,049	662	0700 - 0800	58.4	9.4	6.1	2.3	0.7	23.1	A	824	2002	-
CR703	17,223	1,767	0700 - 0800	56.4	20.4	5.6	3.5	0.9	13.1	E	2435	2543	-
CR704	8,993	1,134	1700 - 1800	70.0	7.6	6.0	4.0	0.9	11.4	B	1434	2222	-

Temerloh

CR801	17,130	1,690	1400 - 1500	60.8	9.8	7.7	4.5	0.5	16.7	F	2221	2136	R
CR802	8,317	723	1100 - 1200	56.9	9.7	9.5	13.7	0.4	9.7	A	1101	1948	2060
CR803	33,391	2,758	1700 - 1800	74.1	6.2	3.7	2.3	0.2	13.6	F	3218	2268	R
CR807	10,861	1,018	1800 - 1900	64.5	11.3	6.1	4.1	0.7	13.4	B	1322	2172	-
CR808	22,008	2,049	1700 - 1800	70.0	5.8	3.5	2.6	0.3	17.8	A	2397	7514	-
CR809	12,474	1,152	1700 - 1800	66.1	8.0	4.5	5.5	0.6	15.3	C	1463	2000	-

Maran

CR804	6,815	616	1700 - 1800	64.4	10.9	8.1	4.0	0.1	12.4	A	809	1846	2102
CR805	6,889	599	1500 - 1600	57.4	13.6	8.7	6.7	0.5	13.1	A	844	1789	-
CR811	9,889	970	1700 - 1800	66.9	11.8	5.6	1.8	0.4	13.6	A	1207	2105	2075
CR812	11,386	1,134	1700 - 1800	61.3	14.0	7.8	4.9	0.3	11.6	C	1545	1981	2028
CR813	2,894	315	1700 - 1800	50.6	11.3	5.6	0.4	0.2	32.0	A	381	1873	NA
CR814	2,532	223	0700 - 0800	59.4	12.6	11.7	1.0	0.3	15.0	A	296	1759	NA

Jerantut

CR806	15,171	1,457	1800 - 1900	69.3	9.8	3.8	2.1	0.3	14.7	D	1753	2082	-
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Bera

CR810	9,650	840	1100 - 1200	51.6	16.3	9.7	6.7	0.3	15.4	B	1217	1895	-
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Rompin

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
CR902	12,330	1,260	1800 - 1900	56.4	19.6	5.2	7.8	1.3	9.7	E	1834	1887	2020
CR903	9,848	881	1700 - 1800	56.3	16.5	5.0	3.9	1.4	16.9	B	1187	1852	2026
CR904	8,827	870	0700 - 0800	62.7	13.9	5.2	6.3	0.9	11.0	A	1184	2093	2038
CR905	9,660	1,025	1600 - 1700	66.2	9.0	4.5	3.6	0.6	16.1	B	1272	1880	NA

Cameron Highlands

CR1001	8,562	817	1700 - 1800	61.0	8.8	2.0	1.7	0.5	26.0	A	950	2122	NA
CR1002	5,677	512	1700 - 1800	28.3	48.8	5.9	0.9	0.1	16.0	A	817	2070	NA

Bentong

Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
CR105	11,627	14,439	14,057	14,381	15,168	14,844	13,112	12,278	12,570	12,883	-0.62	0.05
CR106	16,000	17,574	15,490	13,768	18,488	15,702	16,291	18,843	19,144	21,090	2.67	0.46
CR107	4,144	4,152	4,228	4,439	3,616	3,362	3,714	4,052	4,067	4,695	0.10	0.00
CR109	NA	NA	NA	NA	NA	NA	NA	NA	NA	5,049	NA	NA

Kuantan

CR401	7,298	7,710	8,817	8,153	7,157	9,288	6,201	10,203	10,499	9,212	2.68	0.28
CR402	14,589	13,645	14,737	14,961	21,024	25,039	23,768	25,964	28,566	25,034	8.74	0.81
CR403	28,248	29,142	31,138	31,416	31,876	29,856	30,231	33,247	34,204	26,215	0.36	0.03
CR404	59,580	66,023	78,340	81,363	67,420	56,196	63,925	61,045	62,552	66,075	-0.97	0.07
CR405	35,325	37,595	48,105	58,126	61,322	51,699	54,823	49,476	52,890	69,806	5.04	0.50
CR406	37,703	36,093	72,396	59,122	56,172	53,066	65,019	56,809	61,569	58,148	4.03	0.21
CR407	23,845	28,580	31,994	36,043	36,464	43,477	24,585	24,362	25,084	25,967	-1.50	0.02
CR408	42,503	39,016	37,735	38,351	37,162	40,659	30,188	38,479	38,017	37,369	-1.13	0.17
CR409	34,986	35,911	42,538	44,054	45,060	40,395	37,748	35,897	36,636	35,717	-0.66	0.04
CR410	22,079	23,278	22,911	21,601	22,995	20,827	24,850	30,052	30,768	33,911	4.54	0.71
CR411	18,150	21,213	21,479	22,434	22,181	24,926	23,897	27,432	29,048	29,411	4.89	0.94

Kuala Lipis

CR502	7,093	7,617	8,108	7,608	7,918	8,960	8,633	8,587	8,864	9,944	2.97	0.82
CR503	6,253	7,053	7,513	6,985	7,319	8,063	8,757	8,302	8,595	8,239	3.12	0.75

Pekan

CR601	3,660	3,298	2,857	3,403	3,428	8,775	9,236	8,867	9,954	9,335	15.61	0.75
CR602	3,843	4,088	5,517	4,608	4,846	4,497	4,997	4,565	4,669	4,824	1.33	0.12
CR603	8,650	9,761	10,319	11,563	11,535	10,741	11,620	11,606	12,370	11,748	3.00	0.70

Raub

Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
CR702	17,863	19,414	21,940	24,419	25,041	14,589	15,429	6,761	6,903	7,049	-14.20	0.66
CR703	25,779	23,229	29,577	29,976	21,153	21,086	8,828	16,392	16,738	17,223	-7.60	0.49
CR704	18,299	18,922	18,409	16,792	12,188	13,718	7,678	7,826	7,991	8,993	-11.48	0.85

Temerloh

CR801	11,771	11,597	13,281	13,328	15,673	14,874	15,730	16,731	17,493	17,130	4.76	0.91
CR802	7,173	7,776	8,118	8,101	7,992	7,606	8,484	8,447	8,622	8,317	1.42	0.58
CR803	32,933	33,902	31,265	31,256	27,535	26,479	25,606	31,352	32,014	33,391	-0.55	0.03
CR807	10,740	10,572	10,307	18,428	17,616	13,220	10,970	11,089	11,599	10,861	-0.44	-0.01
CR808	27,610	27,939	28,179	23,899	24,660	21,012	22,969	23,079	23,565	22,008	-2.73	0.67
CR809	14,260	14,339	14,243	13,807	13,244	12,522	13,668	12,910	13,026	12,474	-1.49	0.73

Maran

CR804	7,516	7,487	6,885	4,837	5,937	7,054	6,297	7,244	7,397	6,815	0.15	0.00
CR805	6,890	7,317	7,088	6,952	6,714	6,369	6,841	6,915	7,061	6,889	-0.29	0.06
CR811	8,599	9,499	9,991	10,290	9,820	8,683	8,630	9,680	9,802	9,889	0.41	0.03
CR812	7,902	8,761	10,837	11,550	10,293	11,250	11,022	10,721	11,057	11,386	2.92	0.47
CR813	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,894	NA	NA
CR814	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,532	NA	NA

Jerantut

CR806	26,852	26,461	20,879	20,530	15,715	17,669	14,935	16,263	16,606	15,171	-6.36	0.81
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Bera

CR810	9,721	11,348	12,300	14,429	13,257	12,490	10,513	10,046	10,492	9,650	-1.60	0.10
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Rompin

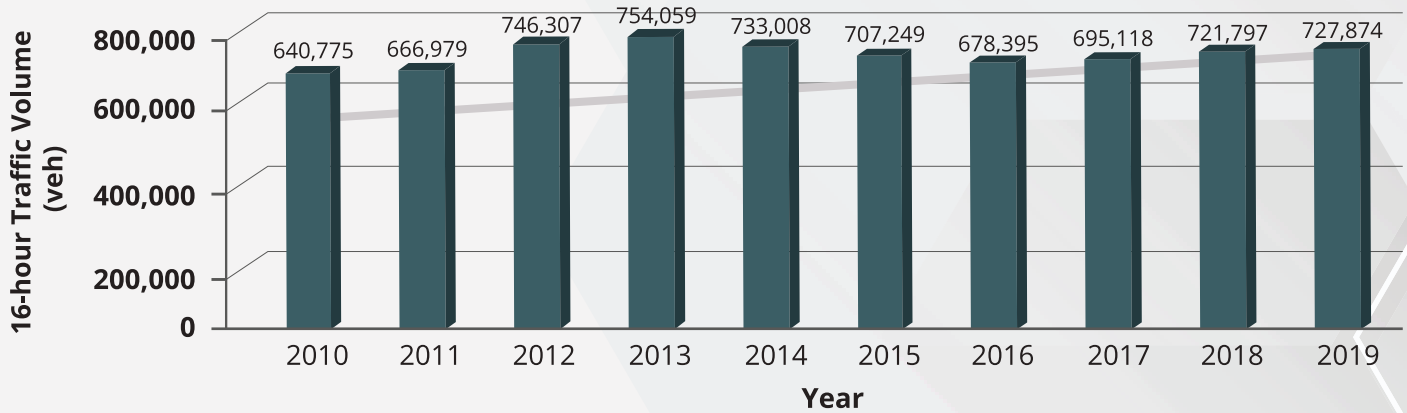
Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
CR902	8,102	8,427	9,545	8,763	9,314	9,985	10,514	10,416	10,651	12,330	3.92	0.88
CR903	6,303	6,672	7,673	7,089	7,901	10,276	10,506	10,502	11,683	9,848	6.64	0.77
CR904	6,886	7,129	7,517	7,241	7,808	8,001	8,187	8,684	9,031	8,827	3.03	0.94
CR905	NA	NA	NA	NA	NA	NA	NA	NA	NA	9,660	NA	NA

Cameron Highlands

CR1001	NA	NA	NA	NA	NA	NA	NA	NA	NA	8,562	NA	NA
CR1002	NA	NA	NA	NA	NA	NA	NA	NA	NA	5,677	NA	NA

YEAR 16-HOUR TRAFFIC VOLUME (2010-2019)

Pahang



$$y = 683325e^{0.006x} \quad | \quad R^2 = 0.12$$

Normal Growth = 0.60%

Yearly 16-Hour Traffic Volume (2010-2019) & Normal Traffic Growth with Exponential Trendline for the Year 2019 in Pahang

0.84%
INCREASE

There are 43 census stations in Pahang. The pattern of 16-hour traffic volume exhibits a gradual increment 2010 to 2013. The traffic volume starts to drop from the year 2014 until 2016. The number of vehicles start to increase from the year 2016 until 2019. The increase from the year 2018 to 2019 is 0.84%, which is equivalent to 6,077 vehicles.

For the year 2019, the observed traffic growth rate for the state of Pahang is 0.60%. The basis of traffic growth rate record is to be used as a projection indicator of subsequent traffic growth rate for road forethought as well as for the expansion of current and new roads in Pahang.





TERENGGANU

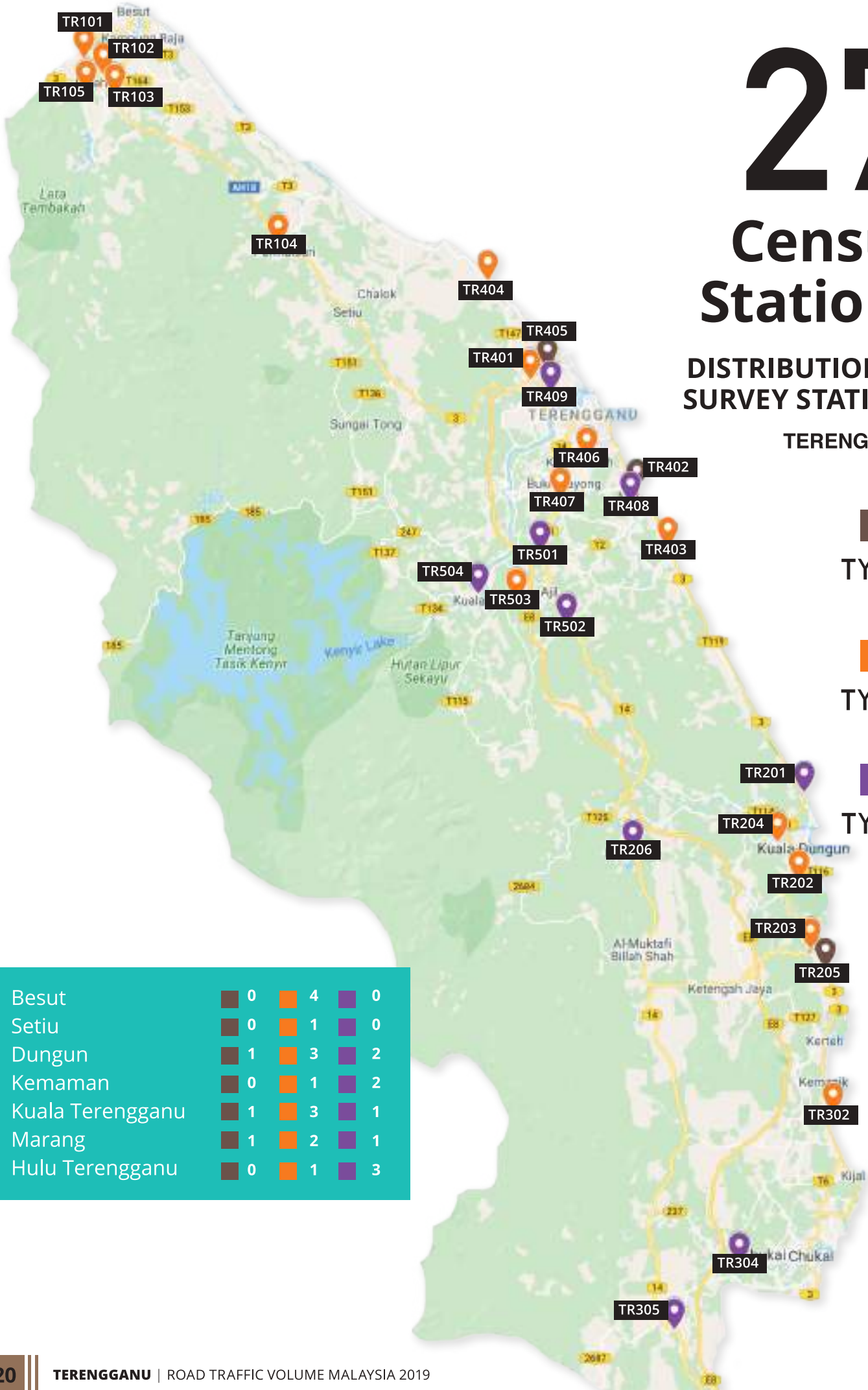
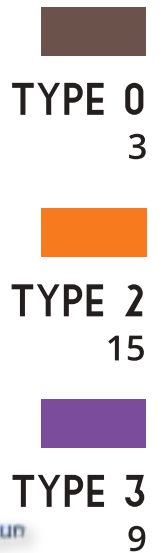
*Jambatan Angkat
Jalan Kuala Terengganu - Seberang Takir*

27

Census Stations

DISTRIBUTION OF SURVEY STATIONS

TERENGGANU



Besut	0	4	0
Setiu	0	1	0
Dungun	1	3	2
Kemaman	0	1	2
Kuala Terengganu	1	3	1
Marang	1	2	1
Hulu Terengganu	0	1	3

Besut

Census Station Number	Survey Type	Route Number	KM	Description Of Location	GPS Coordinate (WGS84) (Latitude, Longitude)	Type Of Carriageway
TR101	2	189		Jerteh - Kuala Besut	5.7672500 102.4892500	T1-1
TR102	2	84		Jerteh - Kuala Besut (Kg. Raja)	5.7470770 102.5128330	T1-1
TR103	2	3		K. Terengganu - Jerteh - Kota Bharu	5.7209270 102.5284970	T1-1
TR105	2	T5		Jerteh - Keruak	5.7249080 102.4914940	T1-1

Setiu

TR104	2	3		Kuala Terengganu - Kota Bharu	5.5291430 102.7392330	T1-1
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Dungun

TR201	3	3		Kuala Terengganu - Dungun	4.8260500 103.4167600	K2-2
TR202	2	3		K. Terengganu - Dungun - Kemaman	4.7125770 103.4101870	K2-2
TR203	2	122		Paka - Rasau	4.6242670 103.4256730	K2-2
TR204	2	132		Kuala Dungun - Jambatan Jerangau	4.7613620 103.3832040	T1-1
TR205	0	3		Paka - Kerteh	4.5999550 103.4445930	K2-2
TR206	3	14		Lebuhraya Jerangau - Jabor	4.7503820 103.1962530	T1-1

Kemaman

TR302	2	3		K. Terengganu - Kemaman - Kuantan	4.4131520 103.4535270	K2-2
TR304	3	T13		Air Putih - Paman	4.2207510 103.3338750	T1-1
TR305	3	14		Cheneh - Kuala Terengganu	4.1355280 103.2492870	T1-1

Kuala Terengganu

TR401	2	3		Kuala Terengganu - Jerteh	5.3546780 103.0642800	T1-1
TR404	2	3685		Kuala Terengganu - Kg. Merang	5.4824280 103.0090700	T1-1
TR405	0	3685		Gong Badak - Kuala Terengganu	5.3700580 103.0864720	K2-2
TR406	2	T100		Kuala Terengganu - Chedering	5.2553720 103.1368611	T1-1
TR409	3	3		Pekan Batu Enam - Kuala Terengganu	5.3398910 103.0898180	T1-1

Marang

TR402	0	3		Kuala Terengganu - Marang	5.2142100 103.2019590	K2-2
TR403	2	3		Kuala Terengganu - Marang	5.1405280 103.2416420	T1-1
TR407	2	14		Jalan Kuala Berang	5.2035933 103.1026082	K2-2
TR408	3	T2		Marang - Wakaf Tapai	5.1970156 103.1930093	T1-1

Hulu Terengganu

Census Station Number	Survey Type	Route Number	KM	Description Of Location	GPS Coordinate (WGS84) (Latitude, Longitude)	Type Of Carriageway
TR501	3	T107		Kuala Berang - Tanggol - Wakaf Tapai	5.1340464 103.0760862	T1-1
TR502	3	14		Kuala Terengganu - Ajil - Jerangau	5.0418810 103.1104060	T1-1
TR503	2	106		Kuala Terengganu - Ajil - Kuala Berang	5.0725775 103.0465859	K2-2
TR504	3	247		K. Terengganu - K. Berang - Kg. K. Peng	5.0805820 102.9973780	T1-1

Besut

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
TR101	11,910	1,168	1800 - 1900	58.8	8.4	2.8	1.9	0.3	27.7	C	1368	1760	-
TR102	16,886	1,463	1700 - 1800	70.5	10.0	2.7	1.5	0.3	15.0	D	1720	2011	2035
TR103	19,092	1,566	1400 - 1500	72.2	10.4	1.8	1.7	0.6	13.4	D	1841	2262	-
TR105	12,587	1,447	0700 - 0800	67.1	9.6	2.0	0.4	0.3	20.7	C	1649	2209	-

Setiu

TR104	16,403	2,014	0700 - 0800	65.9	11.7	2.9	1.7	0.7	17.0	F	2436	2339	R
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Dungun

TR201	12,566	1,308	0700 - 0800	56.5	17.7	8.1	3.2	1.9	12.7	A	1831	6645	2149
TR202	23,148	2,475	1700 - 1800	55.2	15.4	3.4	0.8	0.7	24.5	A	3056	6864	-
TR203	12,535	1,451	1800 - 1900	52.7	11.2	4.3	2.6	0.4	28.8	A	1795	7456	2120
TR204	8,799	1,087	0700 - 0800	61.0	10.0	6.5	0.9	0.5	21.0	A	1333	2413	-
TR205	38,869	4,427	0700 - 0800	61.8	8.9	3.8	1.9	0.4	23.2	C	5281	7539	2029
TR206	4,522	527	1500 - 1600	57.9	14.0	9.4	11.6	0.6	6.5	A	803	1866	-

Kemaman

TR302	19,251	1,644	0700 - 0800	68.5	11.7	4.4	2.2	1.0	12.2	A	2052	7430	2148
TR304	5,140	538	1700 - 1800	51.6	14.4	7.6	1.3	0.0	25.1	A	690	2006	203
TR305	4,202	400	0700 - 0800	53.1	12.5	7.9	7.4	0.3	18.8	A	559	1914	-

Kuala Terengganu

KR401	21,665	1,999	0700 - 0800	53.1	17.6	5.0	2.3	0.6	21.4	F	2619	2049	R
TR404	11,087	1,139	1700 - 1800	70.0	10.5	3.4	0.9	0.7	14.5	A	1352	2348	-
TR405	67,928	7,376	0700 - 0800	68.0	7.8	2.1	0.6	0.3	21.2	F	8322	6988	R
TR406	20,067	2,159	0700 - 0800	50.5	9.4	5.8	1.6	0.2	32.4	F	2631	1924	R
TR409	30,842	3,731	0700 - 0800	54.9	5.4	5.2	1.3	0.3	33.0	F	4341	2622	R

Marang

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
TR402	35,124	3,459	1700 - 1800	61.1	12.9	2.9	0.6	0.4	22.2	A	4123	7703	2037
TR403	14,702	1,351	1700 - 1800	65.6	14.6	5.3	1.0	0.7	12.8	B	1701	2539	-
TR407	21,961	2,148	0700 - 0800	67.3	8.8	4.9	1.1	0.3	17.7	A	2551	7532	2048
TR408	12,520	1,344	1700 - 1800	55.8	6.3	2.8	0.8	0.9	33.5	B	1529	2412	-

Hulu Terengganu

TR501	4,961	628	0700 - 0800	56.4	8.7	4.5	1.3	0.0	29.2	A	740	1695	2030
TR502	11,561	1,050	0700 - 0800	63.5	11.0	6.9	4.1	0.0	14.5	B	1361	2067	-
TR503	21,074	1,836	1700 - 1800	72.4	10.1	2.2	1.3	0.3	13.7	A	2140	7171	2124
TR504	12,143	1,175	1800 - 1900	67.2	12.6	2.3	2.5	0.3	15.0	B	1430	2105	-

Besut

Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
TR101	11,217	12,422	14,611	18,010	16,147	15,204	17,030	12,056	12,363	11,910	-0.41	0.00
TR102	18,550	16,663	17,695	16,086	14,740	15,598	17,026	18,052	17,980	16,886	0.01	0.00
TR103	24,196	25,551	27,325	27,066	19,490	23,584	22,605	21,136	20,946	19,092	-3.13	0.53
TR105	11,199	12,827	12,895	13,896	14,343	11,940	13,561	11,650	11,841	12,587	-0.17	0.00

Setiu

TR104	14,188	14,451	14,882	14,693	15,806	15,569	17,222	15,803	16,307	16,403	1.77	0.71
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Dungun

TR201	10,440	13,386	8,929	9,821	9,007	8,068	8,669	11,521	11,497	12,566	0.84	0.02
TR202	28,602	30,035	27,856	29,864	28,124	28,171	24,852	23,209	23,023	23,148	-3.17	0.76
TR203	11,028	13,605	14,453	13,818	12,820	14,526	16,973	14,288	14,617	12,535	1.42	0.12
TR204	8,300	10,791	8,393	9,284	10,027	10,166	9,951	8,824	9,098	8,799	-0.12	0.00
TR205	29,818	33,471	26,867	37,896	34,451	35,009	48,112	36,933	39,134	38,869	3.52	0.40
TR206	6,350	6,945	5,952	5,896	5,513	4,758	5,183	4,374	4,199	4,522	-5.24	0.87

Kemaman

TR302	16,831	17,498	18,418	19,086	19,298	16,258	17,747	17,531	17,787	19,251	0.42	0.05
TR304	4,400	2,424	3,337	3,434	3,424	3,878	5,021	4,823	5,317	5,140	6.06	0.59
TR305	5,590	6,553	7,566	8,036	7,667	4,105	3,992	4,268	4,136	4,202	-6.90	0.40

Kuala Terengganu

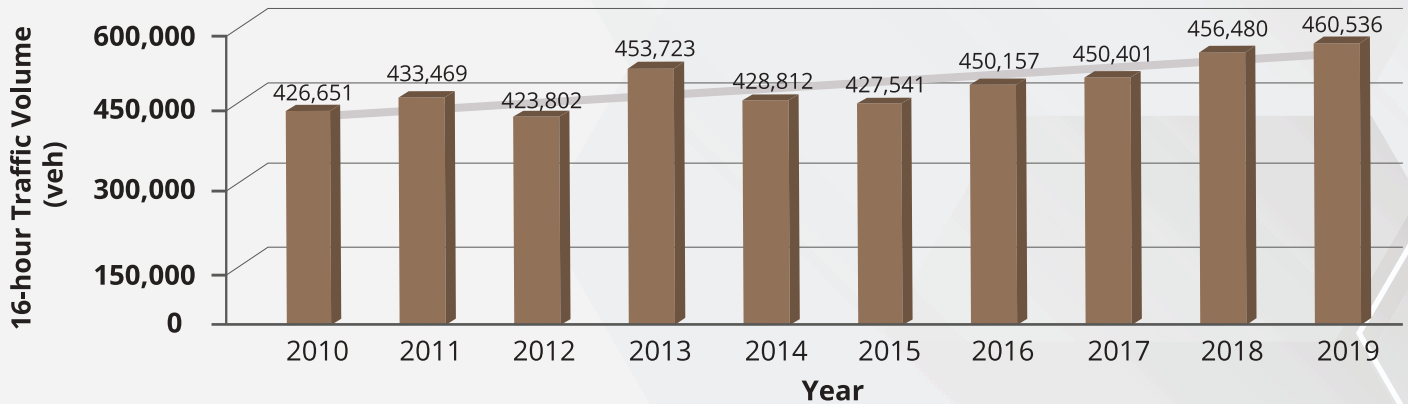
TR401	23,673	22,183	22,263	22,722	22,556	25,586	21,616	21,104	21,218	21,665	-0.85	0.18
TR404	14,219	11,812	12,679	15,597	13,667	11,455	11,356	10,594	10,735	11,087	-2.99	0.44
TR405	51,546	44,675	47,067	56,821	50,950	61,598	54,860	63,365	63,599	67,928	3.96	0.76
TR406	16,727	18,504	18,465	20,190	21,619	20,738	22,258	19,117	19,916	20,067	1.56	0.29
TR409	NA	NA	NA	NA	NA	NA	NA	NA	NA	30,842	NA	NA

Marang

Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
TR402	25 887	27 451	29,532	31,227	31,686	24,887	34,408	35,427	36,656	35,124	3.47	0.62
TR403	14,409	15,103	14,435	13,712	15,221	12,925	8,317	15,765	15,544	14,702	-0.51	-0.01
TR407	17,751	17,384	17,360	19,041	19,224	19,524	24,690	22,995	23,756	21,961	3.82	0.72
TR408	13,517	12,868	12,211	11,737	8,878	5,861	10,424	11,726	11,734	12,520	-1.40	0.04

Hulu Terengganu

TR501	3,050	2,840	2,956	2,894	2,702	2,884	3,546	5,214	5,424	4,961	7.53	0.72
TR502	14,695	12,649	10,092	8,715	8,739	9,561	9,047	10,410	9,847	11,561	-2.15	0.20
TR503	18,188	19,064	17,140	15,461	15,446	17,601	12,834	19,736	19,793	21,074	1.13	0.08
TR504	12,280	12,314	10,426	8,723	7,271	8,092	8,862	10,484	10,012	12,143	-0.83	0.02



$$y = 421860e^{0.008x} \quad | \quad R^2 = 0.57$$

Normal Growth = 0.80 %

Yearly 16-Hour Traffic Volume (2010-2019) & Normal Traffic Growth with Exponential Trendline for the Year 2019 in Terengganu



**0.89%
INCREASE**

There are 27 census stations in Terengganu. The 16-hour traffic volume shows a fluctuation in the number of vehicles since the year 2010 until year 2019. There is a rise of 0.89% of traffic volume for the year 2019 which corresponds to 4056 vehicles compare to the year of 2018.



For the year 2019, the observed traffic growth rate for the state of Terengganu is 0.80%. The basis of traffic growth rate record is to be used as a projection indicator of subsequent traffic growth rate for road forethought as well as for the expansion of current and new roads in Terengganu.

An aerial photograph of a long, multi-lane bridge spanning a wide river. The bridge has several lanes in each direction, with white lane markings and arrows. The river water is a muddy brown color. The bridge is supported by several concrete piers. The surrounding area includes some green vegetation on the banks.

KELANTAN

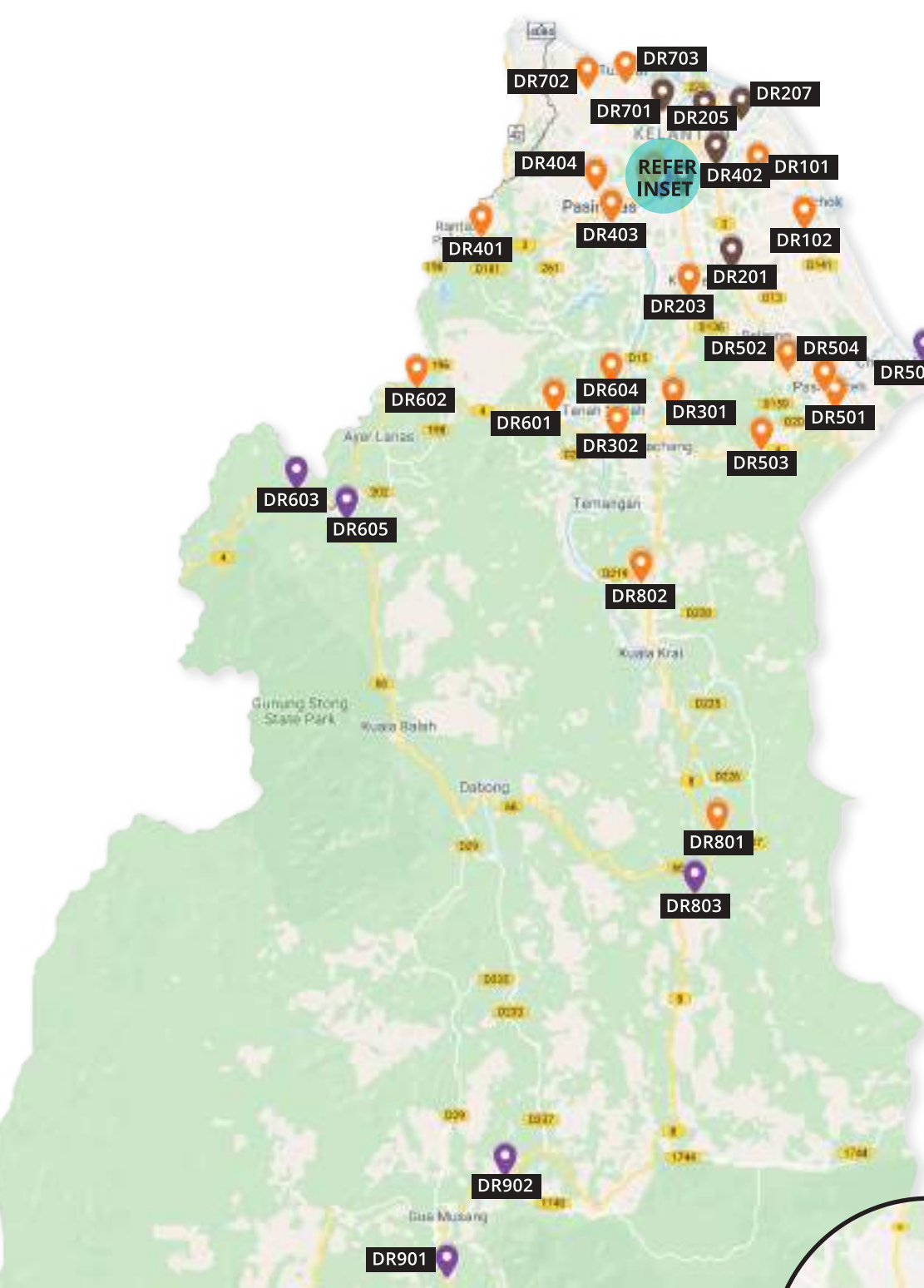
*Jambatan Sultan Yahya Petra
Jalan Kota Bahru - Pengkalan Kubor (FT003)*

34

Census Stations

DISTRIBUTION OF SURVEY STATIONS

KELANTAN



TYPE 0
6



TYPE 2
21



TYPE 3
7



Bachok	0	2	0
Kota Bharu	5	1	1
Machang	0	2	0
Pasir Mas	0	5	0
Pasir Puteh	0	4	1
Tanah Merah	0	3	0
Jeli	0	0	2
Tumpat	1	2	0
Kuala Krai	0	2	1
Gua Musang	0	0	2

Bachok

Census Station Number	Survey Type	Route Number	KM	Description Of Location	GPS Coordinate (WGS84) (Latitude, Longitude)		Type Of Carriageway
DR101	2	211		K. Bharu - Peringat - Gunong - Bachok	6.0738430	102.3250330	T1-1
DR102	2	D10		Kota Bharu - Pengkalan Baru - Bachok	6.0121074	102.3787078	T1-1

Kota Bharu

DR201	0	3		Kota Bharu - Pasir Puteh	5.9673056	102.2953333	K2-2
DR202	0	3		Kota Bharu - Pasir Puteh	6.0857350	102.2767260	K2-2
DR203	2	8		Kota Bharu - Machang	5.9356360	102.2462730	T1-1
DR204	0	8		Kota Bharu - Machang	6.0516700	102.2381350	T1-1
DR205	0	57		Kota Bharu - Pengkalan Chepa	6.1349444	102.2629444	K2-2
DR206	3	130		Wakaf Che Yeh - Salor - Pasir Mas	6.0481389	102.2137222	T1-1
DR207	0	131		Kubang Krian - Sabak	6.1382240	102.3065640	T1-1

Machang

DR301	2	8		Kota Bharu - Machang	5.8053850	102.2277600	T1-1
DR302	2	4		Machang - Tanah Merah - Jeli	5.7726944	102.1631944	T1-1

Pasir Mas

DR401	2	3		Pasir Mas - Rantau Panjang	6.0033321	102.0071105	T1-1
DR402	2	3		Pasir Mas - Kota Bharu	6.0567500	102.1977222	T1-1
DR403	2	129		Pasir Mas - Tanah Merah	6.0198980	102.1568180	T1-1
DR404	2	D25		Pasir Mas - Meranti	6.0560170	102.1386380	T1-1
DR405	2	208		Tendong - Pendek	6.0636667	102.2054444	K2-2

Pasir Puteh

DR501	2	3		K. Bharu - Pasir Puteh - Batu Melintang	5.8067350	102.4147700	T1-1
DR502	2	3		Kota Bharu - Kuala Terengganu	5.8499380	102.3600000	T1-1
DR503	2	4		Pasir Puteh - Machang	5.7589900	102.3288270	T1-1
DR504	2	D210		K. Bharu - Pasir Puteh - Kuala Semerak	5.8269970	102.4020330	T1-1
DR505	3	189		Jalan Melawi - Semarak	5.8592220	102.5172380	T1-1

Tanah Merah

Census Station Number	Survey Type	Route Number	KM	Description Of Location	GPS Coordinate (WGS84) (Latitude, Longitude)	Type Of Carriageway
DR601	2	4		Timur Barat Highway	5.8035612 102.0902252	T1-1
DR602	2	4		Timur Barat Highway	5.8298430 101.9325330	T1-1
DR604	2	129		Jalan Pasir Mas - Tanah Merah	5.8345400 102.1561170	T1-1

Jeli

DR603	3	4		Lebuh raya Timur - Barat	5.7142770 101.7935220	T1-1
DR605	3	66		Jeli - Dabong	5.6808863 101.8510895	T1-1

Tumpat

DR701	0	D21		Kota Bharu - Tumpat / Palekbang	6.1480600 102.2161100	T1-1
DR702	2	134		Kota Bharu - Pengkalan Kubor	6.1732778 102.1284167	T1-1
DR703	2	D21		Chabang Tiga - Tumpat	6.1806380 102.1731420	T1-1

Kuala Krai

DR801	2	8		Kota Bharu - Gua Musang	5.3206420 102.2788070	T1-1
DR802	2	8		Kota Bharu - Kuala Krai	5.6073730 102.1908900	T1-1
DR803	3	66		Sungai Sam	5.2512100 102.2528300	T1-1

Gua Musang

DR901	3	8		Gua Musang - Merapoh	4.8109670 101.9674530	T1-1
DR902	3	8		Gua Musang - Renok - Kuala Krai	4.9269050 102.0345320	T1-1

Bachok

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
DR101	17,778	1,765	0700 - 0800	56.5	7.3	3.1	0.5	0.2	32.4	E	2001	2131	-
DR102	23,154	2,136	0700 - 0800	65.2	5.9	3.7	0.5	0.3	24.5	F	2413	2118	R

Kota Bharu

DR201	34,004	2,884	1700 - 1800	63.2	7.4	8.3	1.2	1.8	18.1	A	3631	6467	2046
DR202	36,724	3,276	0700 - 0800	69.4	5.4	6.1	0.6	1.3	17.3	A	3875	7188	-
DR203	27,948	2,167	1700 - 1800	71.3	6.6	6.3	1.3	2.6	11.9	F	2684	2235	R
DR204	25,819	2,027	1700 - 1800	52.0	12.3	13.8	1.3	2.7	17.9	F	2858	1878	R
DR205	39,399	3,782	1800 - 1900	66.7	6.0	4.6	0.3	0.7	21.8	B	4345	6819	2064
DR206	9,583	864	1700 - 1800	66.2	4.8	2.7	0.1	0.5	25.6	A	952	2140	2051
DR207	22,267	1,804	1700 - 1800	57.6	4.4	2.3	1.2	0.3	34.2	E	2000	2130	-

Machang

DR301	25,642	2,771	0700 - 0800	74.7	7.8	3.6	1.3	0.3	12.3	F	3226	1943	R
DR302	14,806	1,151	1700 - 1800	69.1	10.8	5.9	2.4	0.3	11.4	B	1441	2319	-

Pasir Mas

DR401	22,319	1,907	0700 - 0800	66.7	9.3	2.8	0.8	0.7	19.6	F	2223	1959	R
DR402	16,548	1,738	1800 - 1900	60.1	8.9	2.3	0.2	0.3	28.2	D	1969	2452	2041
DR403	17,639	1,487	1200 - 1300	63.9	14.9	3.4	0.7	0.5	16.6	B	1820	2678	-
DR404	12,651	1,454	0700 - 0800	54.1	10.6	3.0	0.3	0.0	31.9	C	1683	2140	2043
DR405	19,718	2,336	1700 - 1800	64.7	8.9	5.0	0.8	0.0	20.6	A	2756	7562	-

Pasir Puteh

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
DR501	16,186	1,561	0700 - 0800	61.3	16.0	4.5	1.0	0.6	16.7	E	1965	2138	-
DR502	21,977	1,930	1700 - 1800	67.7	8.0	2.9	0.6	0.6	20.2	E	2215	2421	-
DR503	11,273	910	1800 - 1900	69.8	10.5	4.5	2.6	0.9	11.7	A	1131	2591	-
DR504	10,611	1,318	1600 - 1700	66.1	8.8	3.0	0.8	0.4	20.8	A	1527	2685	-
DR505	14,830	1,355	1500 - 1600	66.1	5.6	2.0	0.5	0.3	25.6	B	1492	2452	NA

Tanah Merah

DR601	13,604	1,278	1000 - 1100	65.6	10.8	7.5	4.2	0.3	11.6	C	1675	2199	2046
DR602	13,300	1,288	0700 - 0800	65.9	9.2	7.3	3.0	0.6	14.0	C	1641	2272	2031
DR604	15,769	1,549	0700 - 0800	66.9	8.3	2.9	0.8	0.6	20.4	C	1790	2415	-

Jeli

DR603	6,268	574	1500 - 1600	58.8	13.8	6.3	3.9	0.9	16.3	A	763	1991	2108
DR605	6,559	744	0700 - 0800	57.3	12.3	5.6	2.3	0.3	22.2	A	937	2044	2094

Tumpat

DR701	22,920	2,357	1700 - 1800	58.4	8.4	3.6	0.6	0.2	28.8	F	2720	2118	R
DR702	13,734	1,428	1700 - 1800	53.5	8.3	4.4	0.6	0.4	32.8	D	1669	2099	2042
DR703	20,013	2,129	0700 - 0800	60.0	6.2	2.6	0.2	0.1	30.9	F	2359	2149	R

Kuala Krai

DR801	10,700	1,486	0700 - 0800	55.5	17.1	7.3	4.0	0.7	15.3	F	2042	2025	R
DR802	21,898	2,100	1700 - 1800	61.4	13.5	5.6	3.1	0.6	15.8	F	2715	2254	R
DR803	2,236	200	0700 - 0800	51.3	13.1	3.8	0.0	0.0	31.8	A	238	2644	NA

Gua Musang

DR901	8,570	900	1700 - 1800	47.8	25.0	4.3	6.4	2.5	14.0	B	1343	2079	2043
DR902	11,186	995	1600 - 1700	55.9	23.3	6.1	4.6	1.0	9.1	B	1429	2206	2034

Bachok

Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
DR101	20,824	12,711	21,889	24,537	22,613	23,149	19,173	18,785	18,988	17,778	-0.06	-0.01
DR102	17,184	9,386	19,150	21,368	21,284	25,955	23,351	20,926	22,418	23,154	5.87	0.40

Kota Bharu

DR201	31,602	37,939	42,433	32,263	26,043	39,257	28,405	34,390	66,933	34,004	2.19	0.07
DR202	48,957	57,936	46,291	47,187	46,128	49,541	47,234	46,452	46,127	36,724	-2.48	0.44
DR203	33,260	41,274	35,356	35,119	27,703	30,010	21,304	24,690	24,848	27,948	-5.10	0.61
DR204	31,934	37,301	38,669	34,111	32,932	26,937	31,981	26,658	26,828	25,819	-3.92	0.62
DR205	52,560	51,363	51,770	43,734	47,241	56,104	58,061	60,660	60,896	39,399	0.25	0.00
DR206	7,246	8,991	9,667	7,232	8,641	10,390	8,565	9,961	10,245	9,583	2.59	0.35
DR207	30,154	29,824	44,473	39,093	33,763	32,210	39,188	30,761	31,136	22,267	-2.61	0.13

Machang

DR301	23,023	23,725	24,919	25,688	24,350	25,635	28,778	28,037	28,808	25,642	2.01	0.57
DR302	17,188	18,756	19,101	18,465	19,002	19,286	15,393	18,913	19,164	14,806	-1.07	0.09

Pasir Mas

DR401	18,193	19,270	19,442	19,632	19,418	19,526	21,579	21,869	22,414	22,319	2.29	0.88
DR402	17,028	16,438	17,614	16,311	19,292	18,965	18,313	18,253	18,408	16,548	0.63	0.09
DR403	18,873	18,831	20,095	20,824	19,831	20,522	19,965	19,775	19,854	17,639	-0.25	0.02
DR404	11,604	11,588	11,990	12,011	13,894	13,910	13,435	11,832	11,900	12,651	0.75	0.08
DR405	18,208	19,876	19,922	17,443	17,896	17,914	17,466	18,451	18,729	19,718	-0.05	0.00

Pasir Puteh

DR501	19,240	16,698	15,656	13,970	16,096	17,042	14,563	15,620	15,541	16,186	-1.14	0.18
DR502	24,831	23,795	21,093	23,781	22,035	22,608	22,582	22,765	22,954	21,977	-0.67	0.20
DR503	12,369	13,133	10,300	11,331	10,430	10,577	11,269	10,759	10,839	11,273	-1.19	0.24
DR504	16,304	14,365	13,323	14,814	12,432	10,152	9,859	10,437	10,061	10,611	-5.46	0.81
DR505	NA	NA	NA	NA	NA	NA	NA	NA	NA	14,830	NA	NA

Tanah Merah

Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
DR601	14,380	14,516	15,713	14,768	15,124	15,789	20,402	14,893	15,268	13,604	0.36	0.01
DR602	9,260	9,901	10,177	9,871	10,216	10,474	11,160	10,705	10,981	13,300	2.81	0.73
DR604	16,643	17,495	17,419	17,313	18,955	15,111	18,009	17,193	17,239	15,769	-0.46	0.04

Jeli

DR603	5,440	5,863	6,275	6,029	6,141	4,718	6,344	6,300	6,389	6,268	1.08	0.14
DR605	5,837	5,375	6,748	5,940	6,342	4,735	6,859	6,034	6,291	10,099	3.40	0.32

Tumpat

DR701	25,635	28,666	29,956	27,868	29,532	31,640	29,564	26,919	27,603	22,920	-0.95	0.08
DR702	12,664	13,051	15,143	13,922	17,340	15,597	15,625	14,027	14,376	13,734	0.77	0.04
DR703	19,189	21,622	22,243	26,287	22,655	24,422	25,409	20,492	21,121	20,013	-0.14	0.00

Kuala Krai

DR801	10,122	10,565	9,995	10,783	11,860	9,685	10,314	10,979	11,167	10,700	0.62	0.10
DR802	20,623	22,308	23,381	21,200	22,523	23,345	21,969	22,160	22,550	21,898	0.30	0.05
DR803	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,236	NA	NA

Gua Musang

DR901	7,365	7,356	7,082	7,859	7,293	4,898	7,220	8,679	8,891	8,570	1.85	0.17
DR902	8,842	9,219	8,848	8,688	10,087	9,167	10,519	10,820	11,211	11,186	3.01	0.81



$$y = 655316e^{-0.003x} \quad | \quad R^2 = 0.04$$

Normal Growth = -0.30%

Yearly 16-Hour Traffic Volume (2010-2019) & Normal Traffic Growth with Exponential Trendline for the Year 2019 in Kelantan

**13.17%
DECREASE**

There are 34 census stations in Kelantan. The gradual rise is observed since the year 2010 until 2012 in the yearly 16-hour traffic volume. The traffic volume slightly dropped from the year 2013 and 2014. Excluding the year 2018, the traffic gradual drops from the year 2016 to 2019. The decrease from the year 2018 to 2019 is 13.17% which is equivalent to 89,613 vehicles.

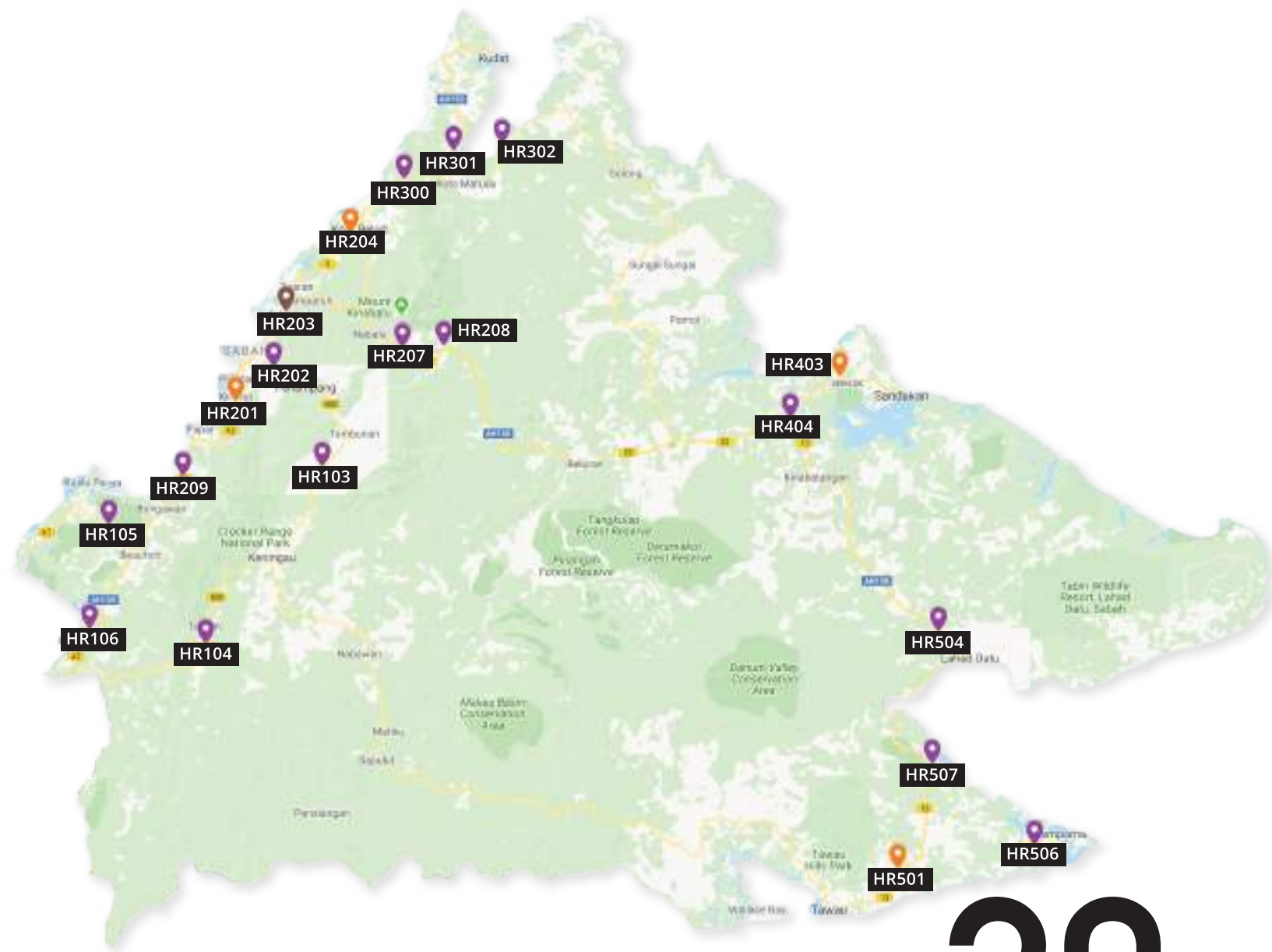
For the year 2019, the observed traffic growth rate for the state of Kelantan is -0.30%. The basis of traffic growth rate record is to be used as a projection indicator of subsequent traffic growth rate for road forethought as well as for the expansion of current and new roads in Kelantan.





SABAH

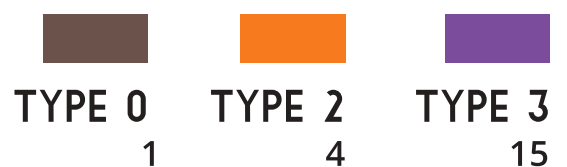
*Jambatan Papar
Jalan Pengalat - Lok Kawi*



20 Census Stations

DISTRIBUTION OF SURVEY STATIONS

SABAH



Beaufort	0	0	1
Sipitang	0	0	1
Tambunan	0	0	1
Tenom	0	0	1
Kota Kinabalu	1	0	0
Papar	0	1	1
Penampang	0	0	1
Ranau	0	0	2
Kota Belud	0	1	1
Sandakan	0	1	0
Kota Marudu	0	0	2
Kinabatangan	0	0	1
Tawau	0	1	0
Semporna	0	0	1
Lahad Datu	0	0	2

Tambunan

Census Station Number	Survey Type	Route Number	KM	Description Of Location	GPS Coordinate (WGS84) (Latitude, Longitude)	Type Of Carriageway
HR103	3	500		KK - Sepulut Highway	5.6138889 116.3109444	T1-1

Tenom

HR104	3	A33		Tenom-Tomani / Bekuku H'way	5.0631944 115.9507500	T1-1
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Beaufort

HR105	3	502		Klias Kecil-Beaufort Menubuk Highway	5.4322222 115.6463889	T1-1
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Sipitang

HR106	3	1	133.5	A2, KK / Sindumin	5.1095200 115.5865000	T1-1
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Papar

HR201	2	1	22	Kota Kinabalu - Sindumin (Kg Mook)	5.8148889 116.0442778	T1-1
HR209	3	1	57	Kota Kinabalu - Sinumin (Mandahan)	5.5823333 115.8794444	T1-1

Penampang

HR202	3	500	18	A3, KK - Tambunan	5.9212778 116.1612500	T1-1
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Kota Kinabalu

HR203	0	1	25	Telipok Town	6.0934167 116.1988889	K2-2
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Kota Belud

HR204	2	1	69	KK - Kudat (Kg.Mantanau)	6.3363889 116.4001944	T1-1
HR300	3	1	105	KK - Kudat (Kg.Lentigi)	6.5041389 116.5684167	T1-1

Ranau

HR207	3	22	81	KK - Sandakan	5.9812778 116.5621111	T1-1
HR208	3	22	114	KK - Sandakan	5.9871111 116.6914444	T1-1

Kota Marudu

Census Station Number	Survey Type	Route Number	KM	Description Of Location	GPS Coordinate (WGS84) (Latitude, Longitude)	Type Of Carriageway
HR301	3	1		Kudut - Kota Kinabalu (Batutai)	6.5902778 116.7218889	T1-1
HR302	3	A12		Kota Marudu - Pitas (Marasinsim)	6.6139444 116.8713611	T1-1

Sandakan

HR403	2	22		KK - Sandakan	5.8915556 117.9246944	T1-1
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Kinabatangan

HR404	3	13	54	Sandakan - Lahad Datu	5.7631389 117.7717500	T1-1
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Tawau

HR501	2	13		Tawau - Sandakan Highway	4.3666667 118.1055556	K2-2
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Lahad Datu

HR504	3	13	14.5	Sg. Segama Crossing	5.1017222 118.2326388	T1-1
HR507	3	13	81	Kunak - Lahad Datu	4.6903611 118.2119444	T1-1

Semporna

HR506	3	A51	0.2	Jalan Sing-Sing	4.4392000 118.5320100	T1-1
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Tambunan

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
HR103	3,181	262	1800 - 1900	45.8	25.3	11.2	8.4	0.0	9.3	A	416	2107	2182

Tenom

HR104	5,023	522	0700 - 0800	35.1	34.6	10.7	3.0	0.0	16.6	A	818	1946	2033
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Beaufort

HR105	5,673	582	1700 - 1800	53.9	25.4	4.9	2.6	0.5	12.7	A	809	2049	2069
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Sipitang

HR106	8,028	686	1700 - 1800	53.8	27.1	6.1	2.5	0.0	10.5	A	969	2036	2057
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Papar

HR201	18,983	1,686	0700 - 0800	61.7	23.6	5.8	2.6	0.9	5.4	F	2347	2025	R
HR209	10,902	902	0700 - 0800	56.8	22.2	8.2	5.6	0.7	6.5	B	1327	1932	2039

Penampang

HR202	5,505	571	1800 - 1900	43.6	22.6	14.0	9.7	0.0	10.1	A	931	2038	2051
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Kota Kinabalu

HR203	42,405	3,057	1700 - 1800	72.1	7.3	8.3	1.0	2.3	8.9	A	3866	6449	2030
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Kota Belud

HR204	17,541	1,665	1800 - 1900	44.3	34.7	9.3	3.2	1.7	6.8	F	2637	2452	R
HR300	5,659	542	0700 - 0800	43.4	39.7	8.5	3.9	0.3	4.2	A	872	1863	-

Ranau

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
HR207	4,957	472	1200 - 1300	36.5	43.3	10.7	4.9	2.4	2.2	A	821	1637	2088
HR208	4,281	400	0700 - 0800	41.6	35.0	8.7	8.2	2.3	4.2	A	676	1621	2043

Kota Marudu

HR301	4,958	449	1300 - 1400	44.4	34.4	9.7	1.9	0.1	9.5	A	687	1830	-
HR302	4,743	536	1400 - 1500	48.3	34.7	6.2	3.0	0.2	7.5	A	807	1893	-

Sandakan

HR403	14,623	1,368	1700 - 1800	31.2	40.6	12.0	10.8	1.2	4.1	F	2501	1782	R
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Kinabatangan

HR404	7,282	591	1400 - 1500	26.2	42.6	10.4	15.2	1.4	4.1	A	1132	1983	-
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Tawau

HR501	15,413	1,475	1000 - 1100	37.7	35.4	9.7	6.6	0.3	10.2	A	2418	6854	2049
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Lahad Datu

HR504	8,504	825	1200 - 1300	34.0	39.2	6.6	8.0	0.6	11.7	C	1371	1897	-
HR507	8,781	1,009	1700 - 1800	43.8	29.2	11.9	8.9	0.8	5.4	D	1679	1889	-

Semporna

HR506	4,701	549	1500 - 1600	43.0	36.4	12.4	2.7	0.6	4.9	A	887	1719	2047
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Tambunan

Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
HR103	2,739	3,000	3,171	2,938	3,018	2,792	2,782	3,137	3,159	3,181	0.86	0.20

Tenom

HR104	4,294	4,425	2,123	2,450	2,378	2,299	6,943	5,618	5,618	4,757	6.39	0.21
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Beaufort

HR105	3,941	5,457	4,550	4,254	4,566	4,759	4,561	5,134	5,180	5,255	1.87	0.28
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Sipitang

HR106	6,441	6,626	5,914	7,585	11,392	10,093	7,800	7,316	7,696	7,337	1.97	0.04
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Papar

HR201	9,370	11,791	14,491	14,406	15,329	15,786	15,999	15,892	17,465	16,755	5.33	0.75
HR209	5,561	6,992	6,249	5,778	8,301	7,408	5,855	5,501	5,666	10,075	1.92	0.10

Penampang

HR202	3,835	3,881	3,353	3,839	4,478	4,105	3,351	4,307	4,354	5,073	2.47	0.38
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Kota Kinabalu

HR203	30,288	35,489	39,394	42,886	43,647	47,846	51,482	53,437	57,990	38,137	4.65	0.43
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Kota Belud

HR204	11,189	11,138	9,953	13,909	11,923	12,388	13,887	15,654	16,405	15,632	4.86	0.77
HR300	6,367	5,029	4,777	6,369	5,084	5,659	5,626	5,428	5,487	5,264	-0.44	0.03

Ranau

Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
HR207	3,732	4,745	5,021	3,813	4,103	3,947	4,111	4,435	4,514	4,628	0.70	0.03
HR208	2,705	3,498	3,872	2,924	3,413	6,833	3,940	3,821	4,080	3,990	3.70	0.10

Kota Marudu

HR301	5,023	6,180	6,381	7,838	8,258	4,731	4,294	4,228	4,349	4,577	-4.68	0.22
HR302	4,277	4,578	5,533	6,481	6,586	3,697	4,314	4,793	4,931	4,457	-0.99	0.02

Sandakan

HR403	16,610	14,321	14,845	15,097	14,975	18,232	17,405	13,511	14,038	13,161	-1.26	0.10
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Kinabatangan

HR404	16,831	13,029	6,049	8,022	6,746	5,336	5,074	5,099	5,245	6,285	-10.73	0.70
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Tawau

HR501	10,074	10,035	10,455	10,327	10,229	11,508	11,694	12,649	13,012	13,272	3.48	0.91
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Lahad Datu

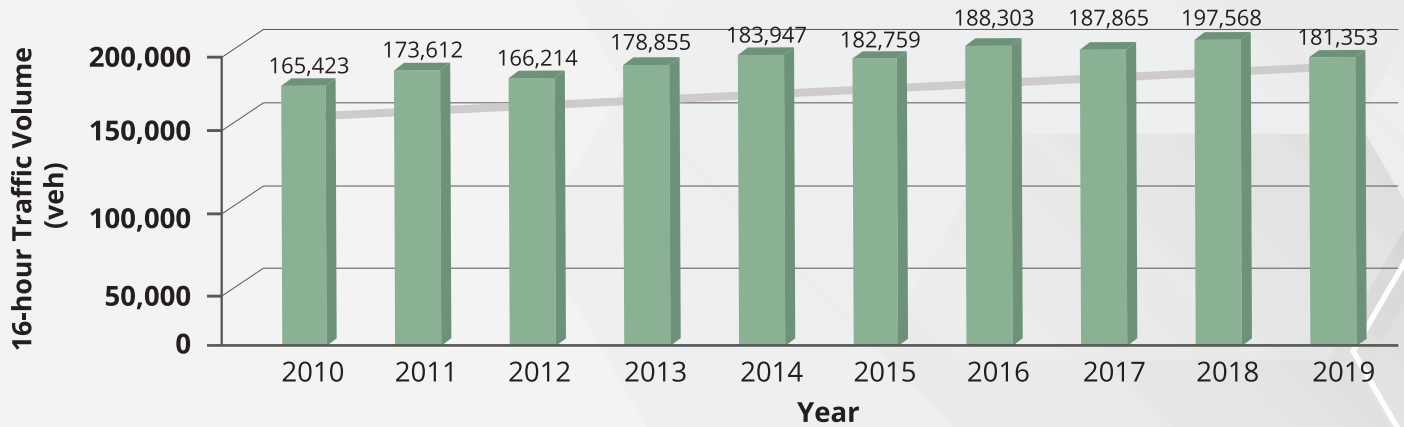
HR504	8,294	8,691	7,641	9,407	8,739	6,335	7,412	6,832	7,028	7,390	-2.50	0.37
HR507	11,141	11,633	9,706	7,831	7,699	6,700	8,169	8,389	8,629	7,776	-3.68	0.49

Semporna

HR506	2,711	3,074	2,742	2,704	3,087	2,310	3,609	2,689	2,721	4,351	2.35	0.20
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YEAR 16-HOUR TRAFFIC VOLUME (2010-2019)

Sabah



$$y = 165960e^{0.0151x} \quad | \quad R^2 = 0.67$$

Normal Growth = 1.51%

Yearly 16-Hour Traffic Volume (2010-2019) & Normal Traffic Growth with Exponential Trendline for the Year 2019 in Sabah

**8.21%
DECREASE**

There are 20 census stations in Sabah. From the yearly 16-hour traffic volume, there is a decrease for the number of vehicles by 8.21% from the year 2018 to 2019 which is equivalent to 16,215 vehicles.

For the year 2019, the observed traffic growth rate for the state of Sabah is 1.51%. The basis of traffic growth rate record is to be used as a projection indicator of subsequent traffic growth rate for road forethought as well as for the expansion of current and new roads in Sabah.





LABUAN

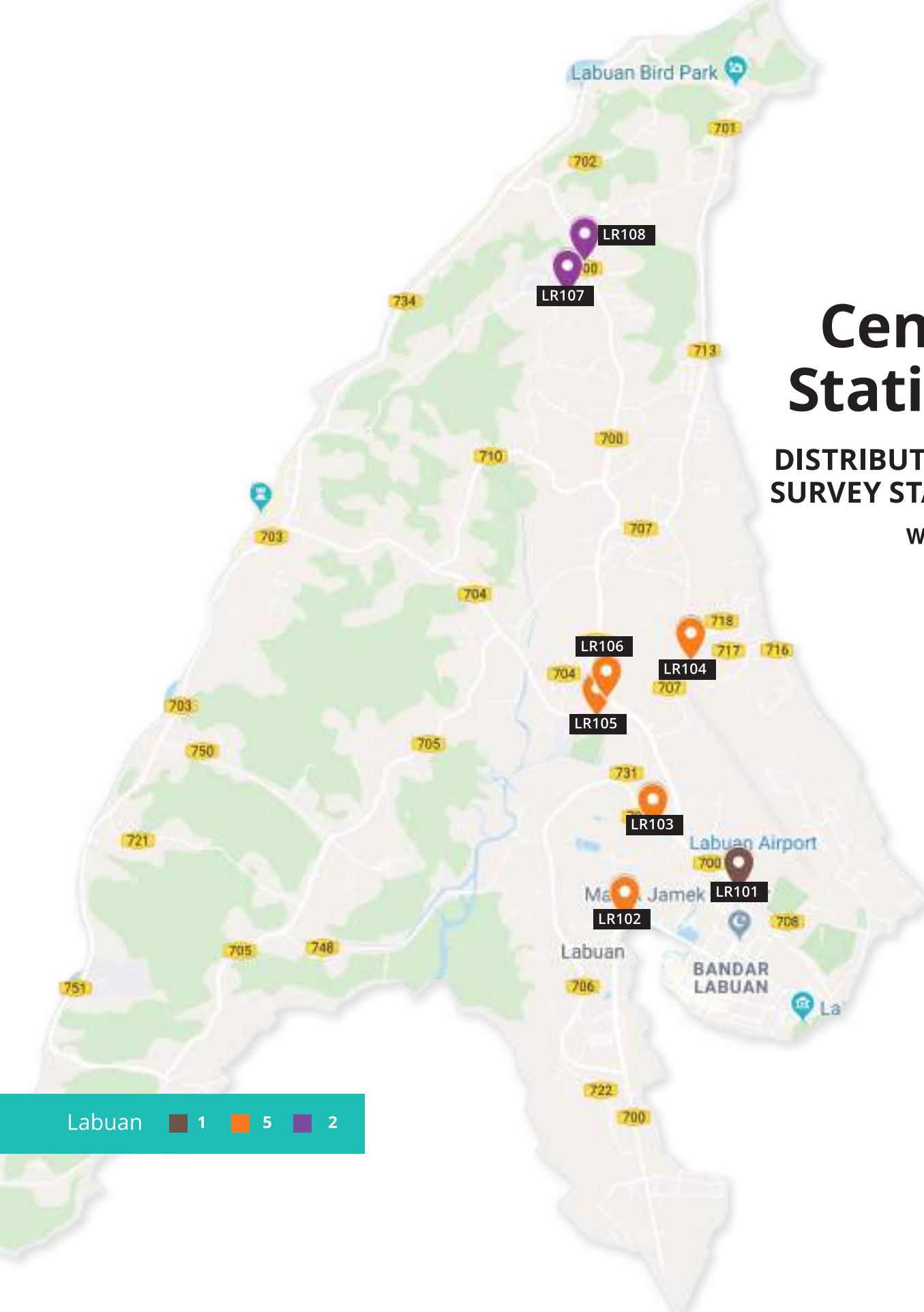
Jalan Thermal Oxidation Plant (TOP) (FT743)

8

Census Stations

DISTRIBUTION OF SURVEY STATIONS

W.P Labuan



- TYPE 0
1
- TYPE 2
5
- TYPE 3
2

Labuan 1 5 2

Labuan

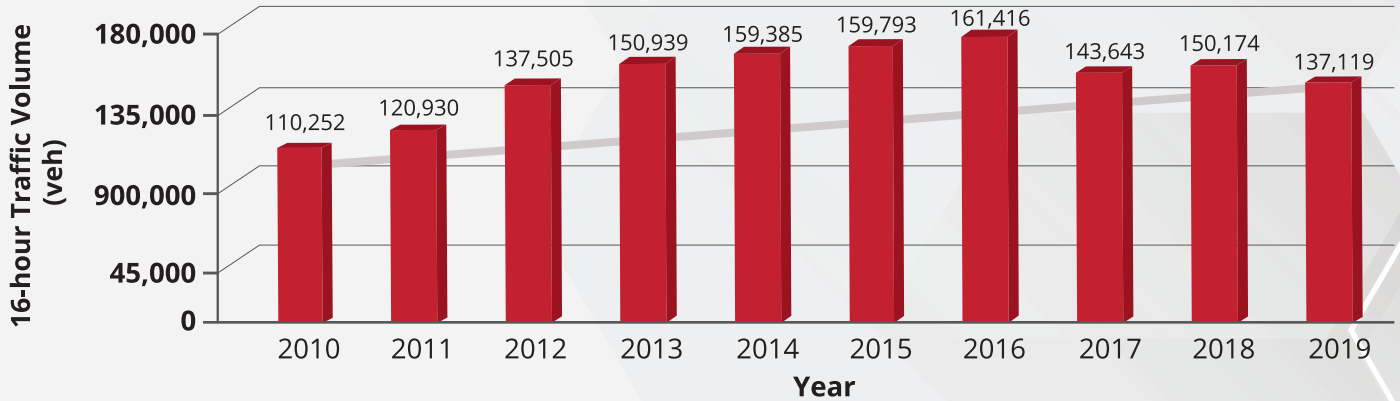
Census Station Number	Survey Type	Route Number	KM	Description Of Location	GPS Coordinate (WGS84) (Latitude, Longitude)	Type Of Carriageway
LR101	0	L700		Jalan Tun Mustapha	5.2898889 115.2475556	K3-3
LR102	2	L700		Jalan Patau–Patau	5.2865000 115.2345278	K2-2
LR103	2	L706		Jalan Ranza–Ranza	5.2970833 115.2377222	T1-1
LR104	2	L707		Jalan Pulau Buah	5.3160556 115.2420556	T1-1
LR105	2	L704		Jalan Mohamad Salleh	5.3097222 115.2313611	T1-1
LR106	2	L700		Jalan Pohon Batu	5.3117500 115.2324170	K2-2
LR107	3	L703		Jalan OKK Daud	5.3579722 115.2279444	T1-1
LR108	3	L700		Jalan Pohon Batu	5.3616400 115.2299210	T1-1

W.P Labuan

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
LR101	38,300	3,651	1700 - 1800	61.6	23.2	2.9	0.2	0.3	11.9	A	4692	10445	-
LR102	20,119	1,747	1700 - 1800	60.9	18.9	2.2	1.2	0.2	16.5	A	2185	7717	2048
LR103	16,538	1,765	1800 - 1900	57.8	23.7	4.4	1.3	0.2	12.5	F	2354	2088	R
LR104	14,666	1,437	0700 - 0800	59.7	25.5	4.2	0.7	0.2	9.5	E	1924	1969	2020
LR105	14,929	1,869	1700 - 1800	64.0	11.9	3.6	1.6	0.8	18.0	E	2283	2298	2020
LR106	21,363	2,110	0600 - 0700	65.8	14.6	3.7	1.3	0.6	14.0	A	2614	7580	2049
LR107	3,155	357	1500 - 1600	63.0	11.2	4.2	1.6	1.0	19.1	A	437	2020	2074
LR108	8,049	813	0600 - 0700	57.2	14.1	4.3	0.7	0.5	23.2	A	1000	2096	2039

W.P Labuan

Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
LR101	38,889	37,905	48,329	45,086	45,523	47,872	44,867	39,886	40,564	38,300	-0.36	0.01
LR102	12,162	18,000	18,215	27,587	29,543	29,675	28,761	21,395	23,534	20,119	4.45	0.12
LR103	9,045	13,533	13,740	13,764	14,396	15,002	16,187	17,556	18,890	16,538	5.77	0.76
LR104	10,562	10,102	10,913	13,462	13,687	12,995	13,818	14,072	14,550	14,666	4.13	0.80
LR105	13,991	16,586	16,656	18,451	20,522	20,428	21,966	16,871	17,174	14,929	0.86	0.02
LR106	19,046	16,920	16,934	19,011	21,458	23,755	23,821	23,114	24,385	21,363	3.59	0.59
LR107	2,388	2,031	4,273	3,682	5,433	3,629	3,637	3,291	3,564	3,155	2.85	0.02
LR108	4,169	5,853	8,446	9,897	8,825	6,439	8,361	7,461	7,513	8,049	3.77	0.12



$$y = 124802e^{0.0236x} \quad | \quad R^2 = 0.32$$

Normal Growth = 2.36%

Yearly 16-Hour Traffic Volume (2010-2019) & Normal Traffic Growth with Exponential Trendline for the Year 2019 in W.P Labuan

**8.69%
DECREASE**

There are 8 census stations in Wilayah Persekutuan Labuan. The 16-hour traffic volume exhibits an increase of traffic volume since the year 2009 until 2016. The trend indicates fluctuation from year 2017 to 2019. A drop of 8.69% occurs between the year 2018 and 2019, which is equivalent to 13,055 vehicles in the yearly 16-hour traffic volume.

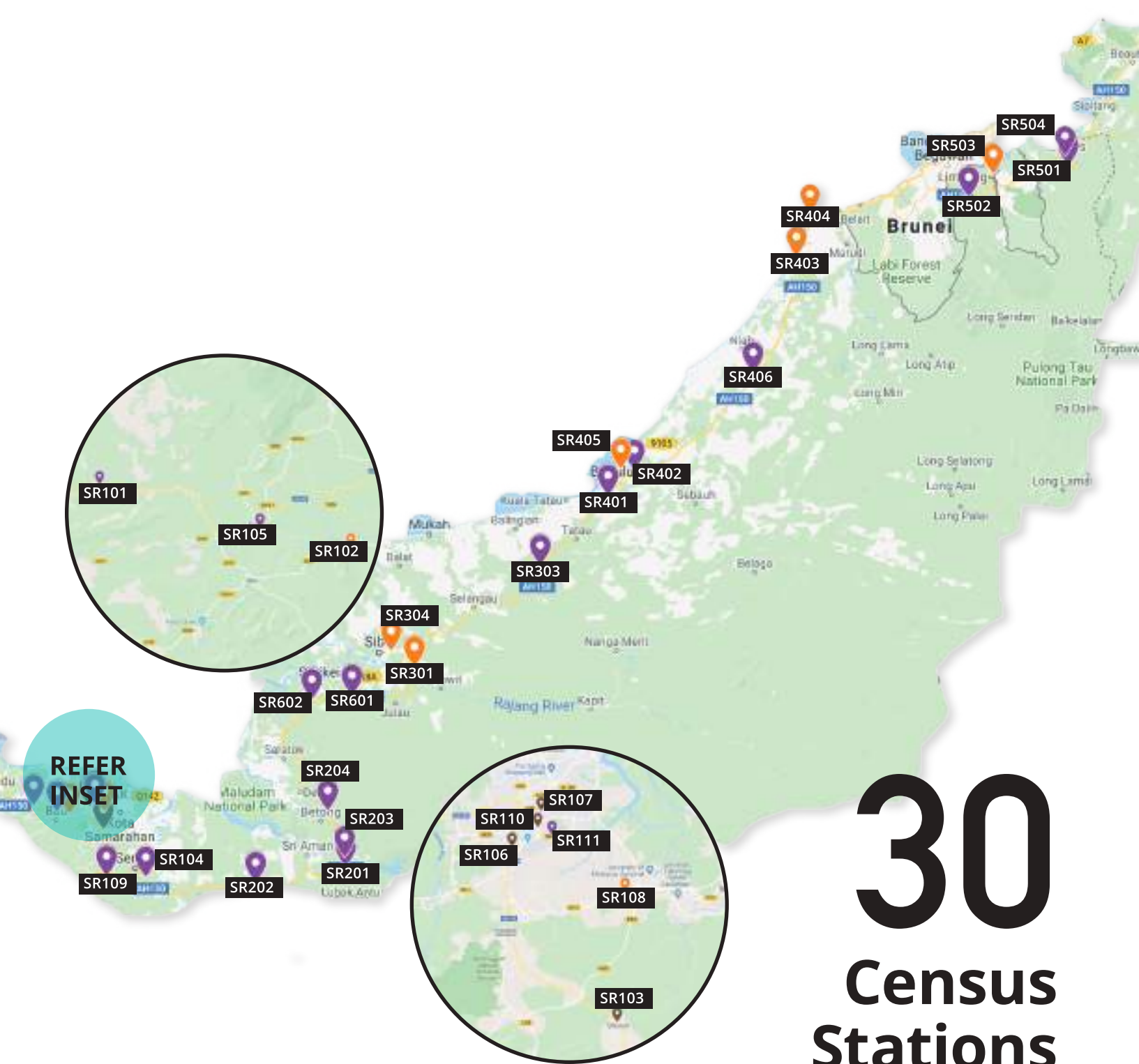


For the year 2019, the observed traffic growth rate for the state of Wilayah Persekutuan Labuan is 2.36%. The basis of traffic growth rate record is to be used as a projection indicator of subsequent traffic growth rate for road forethought as well as for the expansion of current and new roads in Wilayah Persekutuan Labuan.



SARAWAK

*Jambatan Batang Sadong
Jalan Sadong Jaya - Sadong*



30 Census Stations

DISTRIBUTION OF SURVEY STATIONS

SARAWAK

Kuching	4	1	3
Samarahan	0	1	2
Sri Aman	0	0	3
Betong	0	0	1
Sibu	0	2	1
Bintulu	0	1	2
Miri	0	2	1
Lawas	0	0	2
Limbang	0	1	1
Sarikei	0	0	2



Kuching

Census Station Number	Survey Type	Route Number	KM	Description Of Location	GPS Coordinate (WGS84) (Latitude, Longitude)	Type Of Carriageway
SR101	3	1	16.1	Bau-Samarahan	1.4882778 110.0408611	T1-1
SR102	2	Q6		Bau-Kuching	1.4419167 110.2277500	T1-1
SR103	0	1		Kuching-Serian	1.3638889 110.4038889	K2-2
SR105	3	1	18.8	Bau-Kuching	1.4566389 110.1603333	T1-1
SR106	0	1	10.5	Kuching-Serian	1.4856389 110.3310556	K2-2
SR107	0	31	4.5	Kuching Bypass	1.5106111 110.3512500	K3-3
SR110	0	900		Jalan Kuching	1.4993056 110.3486111	K3-3
SR111	3	Q403		Jalan Slutong Baru	1.4939700 110.3586900	K2-2

Samarahan

SR104	3	1	83.7	Kuching - Serian	1.1152778 110.6237500	T1-1
SR108	2	1		Jalan Datuk Mohamad Musa	1.4541110 110.4096110	T1-1
SR109	3	21		Serian - Tebedu	1.1231667 110.4181111	T1-1

Sri Aman

SR201	3	1		Sri Aman - Sarikei	1.1722220 111.6596670	T1-1
SR202	3	1		Sri Aman - Serian	1.0854167 111.1916111	T1-1
SR203	3	3		Batang Ai Road	1.2193056 111.6545833	T1-1

Betong

SR204	3	1		Betong - Sarikei	1.4624444 111.5665556	T1-1
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Sibu

SR301	2	1		Durian Ferry - Junction to Sibu	2.2081389 112.0151667	K2-2
SR303	3	1		Sibu - Tatau	2.7347778 112.6676389	T1-1
SR304	2	800-10A		Rejang Port Access Road	2.2916050 111.8957960	K2-2

Bintulu

SR401	3	1		Bintulu - Sibu	3.0988333 113.0226667	T1-1
SR402	3	1		Bintulu - Miri	3.2264722 113.1610000	T1-1
SR405	2	36		Bintulu - Tg. Kidurong	3.2333060 113.0891110	K2-2

Miri

Census Station Number	Survey Type	Route Number	KM	Description Of Location	GPS Coordinate (WGS84) (Latitude, Longitude)	Type Of Carriageway
SR403	2	1		Miri - Bintulu	4.3380278 114.0000278	T1-1
SR404	2	22		Miri - Brunei Border	4.5551200 114.0731400	T1-1
SR406	3	1		Miri - Sg. Suai	3.7344444 113.7766389	T1-1

Lawas

SR501	3	23		Lawas - Merapok	4.8090556 115.4097222	T1-1
SR504	3	23		Lawas - Trusan	4.8560833 115.3944722	T1-1

Limbang

SR502	3	22		Limbang - Brunei Border (Tedungan)	4.6440278 114.8923333	T1-1
SR503	2	22		Limbang - Brunei Border (Sg.Padaruan)	4.7624722 115.0217222	T1-1

Sarikei

SR601	3	1		Sarikei - Sibul	2.0597778 111.6934444	T1-1
SR602	3	1		Sarikei - Junc. to Bintangor	2.0349800 111.4838300	T2-2

Kuching

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
SR101	4,820	447	0700 - 0800	39.9	24.6	8.3	10.6	0.4	16.2	A	711	1831	2044
SR102	12,239	1,850	0700 - 0800	53.9	14.4	8.4	6.7	0.6	15.9	F	2620	1863	R
SR103	42,598	3,909	1800 - 1900	55.7	16.2	7.3	5.7	0.7	14.3	D	5477	6328	-
SR105	8,414	885	1700 - 1800	58.7	15.5	3.4	1.7	0.2	20.4	A	1101	2047	2043
SR106	69,310	6,194	2100 - 2200	60.1	15.6	5.1	1.4	0.4	17.4	F	7860	6733	R
SR107	83,236	9,612	1700 - 1800	73.2	12.6	5.5	2.1	0.2	6.4	F	12055	10018	R
SR110	48,490	4,393	0700 - 0800	64.9	14.6	3.1	1.1	0.3	16.0	A	5362	10335	2031
SR111	20,132	1,900	1700 - 1800	66.1	10.9	4.8	1.9	0.1	16.3	A	2318	6743	NA

Samarahan

SR104	11,319	1,092	0700 - 0800	55.2	13.3	10.5	2.9	0.8	17.4	C	1488	2037	2021
SR108	28,274	2,823	1700 - 1800	54.8	14.0	6.6	3.5	0.3	20.8	F	3711	1903	R
SR109	2,252	223	1600 - 1700	43.5	26.7	8.0	0.8	2.9	18.0	A	326	1729	2182

Sri Aman

SR201	6,013	713	1700 - 1800	46.7	27.6	10.4	8.0	1.2	6.1	B	1152	1756	2031
SR202	3,654	323	1200 - 1300	44.2	29.5	6.7	10.7	2.0	7.0	A	532	1736	2046
SR203	3,735	403	0800 - 0900	32.6	39.9	11.0	8.9	0.0	7.6	A	702	1659	2032

Betong

SR204	4,784	570	0700 - 0800	46.6	27.2	8.7	9.1	1.1	7.3	A	916	2001	2098
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Sibu

SR301	18,510	1,629	0600 - 0700	47.3	26.8	2.8	3.4	1.0	18.8	A	2276	6720	2025
SR303	5,993	757	0900 - 1000	20.2	42.2	7.1	21.7	3.0	5.8	E	1530	1551	2019
SR304	26,254	2,400	0700 - 0800	50.4	20.5	4.2	4.8	0.9	19.2	A	3316	6553	2072

Bintulu

Station Number	16 Hour Traffic	Peak Hour Traffic	Time	Percentage Of Vehicle Composition						Level Of Service (LOS)	V (pcu /hr)	C (pcu /hr)	Projected Capacity Year
				Cars Taxis	Vans & Utilities	Medium Lorries	Heavy Lorries	Busses	Motorcycles				
SR401	5,017	513	1300 - 1400	33.4	35.9	5.2	19.5	1.5	4.6	A	952	1665	-
SR402	7,359	831	0700 - 0800	36.0	37.9	7.6	11.6	0.8	6.2	C	1446	1891	2029
SR405	23,047	2,413	0700 - 0800	60.9	27.1	3.3	1.0	1.4	6.4	A	3298	6817	-

Miri

SR403	11,743	1,294	0700 - 0800	45.6	35.0	6.2	3.6	1.2	8.5	F	1989	1944	R
SR404	7,332	727	1600 - 1700	46.2	37.8	5.4	2.8	0.9	6.9	A	1115	2027	-
SR406	5,871	672	1600 - 1700	22.6	46.5	6.1	14.2	1.9	8.6	C	1263	1627	2024

Lawas

SR501	3,902	363	0800 - 0900	45.1	35.3	2.9	2.8	0.0	13.9	A	528	2091	2066
SR504	9,335	875	1100 - 1200	46.3	35.0	2.3	1.1	0.0	15.3	A	1231	2436	2027

Limbang

SR502	6,576	564	1700 - 1800	42.6	46.6	3.4	2.9	0.3	4.2	A	892	1943	2044
SR503	21,415	2,164	0600 - 0700	40.3	33.4	1.9	0.9	0.4	23.1	F	3002	2037	R

Sarikei

SR601	4,235	397	1600 - 1700	48.3	24.6	2.3	2.0	0.0	22.7	A	524	2120	2031
SR602	3,368	349	1700 - 1800	36.8	28.8	10.3	13.4	1.1	9.6	A	605	5769	2052

Kuching

Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
SR101	3,091	3,504	5,780	3,512	3,582	4,090	3,429	5,138	5,320	4,820	3.88	0.23
SR102	18,113	21,718	15,568	22,340	19,354	9,461	11,967	12,029	11,379	12,239	-7.23	0.51
SR103	30,616	31,112	32,889	27,987	32,808	34,874	34,950	22,171	22,587	42,598	-0.31	-0.02
SR105	6,322	6,893	10,032	7,430	7,351	7,621	7,920	8,974	9,316	8,414	2.64	0.26
SR106	40,996	39,562	53,073	68,841	50,640	52,597	58,820	61,114	65,422	69,310	5.16	0.59
SR107	50,352	46,154	42,332	54,475	57,770	60,830	78,422	79,652	85,044	83,236	7.94	0.89
SR110	28,674	34,868	38,175	28,102	31,940	39,016	44,963	47,263	47,873	48,490	5.83	0.71
SR111	NA	NA	NA	NA	NA	NA	NA	NA	NA	20,132	NA	NA

Samarahan

SR104	5,244	5,608	6,092	11,200	6,440	7,575	9,011	21,667	36,206	11,319	15.66	0.34
SR108	17,594	29,842	21,143	32,729	14,831	24,320	26,543	28,309	28,875	28,274	3.25	0.13
SR109	1,895	1,909	2,043	11,346	2,443	3,104	3,118	2,325	2,509	2,252	0.29	-0.20

Sri Aman

SR201	4,216	4,197	4,658	3,776	5,643	4,852	4,364	5,325	5,511	6,013	3.67	0.55
SR202	2,426	2,950	3,264	3,063	3,867	3,545	3,716	3,876	4,081	3,654	4.43	0.68
SR203	1,716	1,914	2,474	2,495	2,302	2,454	2,492	2,984	3,168	3,735	6.99	0.87

Betong

SR204	3,747	4,796	6,231	5,992	4,742	4,716	4,148	5,153	5,426	4,784	0.61	0.00
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Sibu

SR301	4,365	4,698	8,827	8,837	14,386	16,523	21,019	21,725	22,659	18,510	18.94	0.74
SR303	2,726	3,269	4,444	6,557	4,518	5,068	6,674	6,424	6,353	5,993	8.33	0.57
SR304	24,998	23,730	25,254	28,252	28,728	23,860	24,934	29,430	29,430	26,254	1.31	0.21

Bintulu

Station Number	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Normal Growth (%/yr)	R ²
SR401	10,957	14,520	4,342	4,476	5,125	5,841	5,563	5,685	5,258	5,017	-7.28	0.41
SR402	8,507	4,178	5,355	9,139	8,677	7,452	7,428	8,000	8,208	7,359	2.82	0.07
SR405	19,003	36,245	28,603	28,131	28,995	28,352	16,967	22,068	22,399	23,047	-2.71	0.14

Miri

SR403	10,506	12,211	11,805	10,865	10,887	12,329	9,092	9,861	9,792	11,743	-1.12	0.10
SR404	9,489	10,228	9,248	10,771	10,981	12,329	9,188	9,426	9,473	7,332	-1.89	0.13
SR406	4,030	3,567	3,539	3,586	3,670	6,528	4,650	5,126	5,372	5,871	5.73	0.53

Lawas

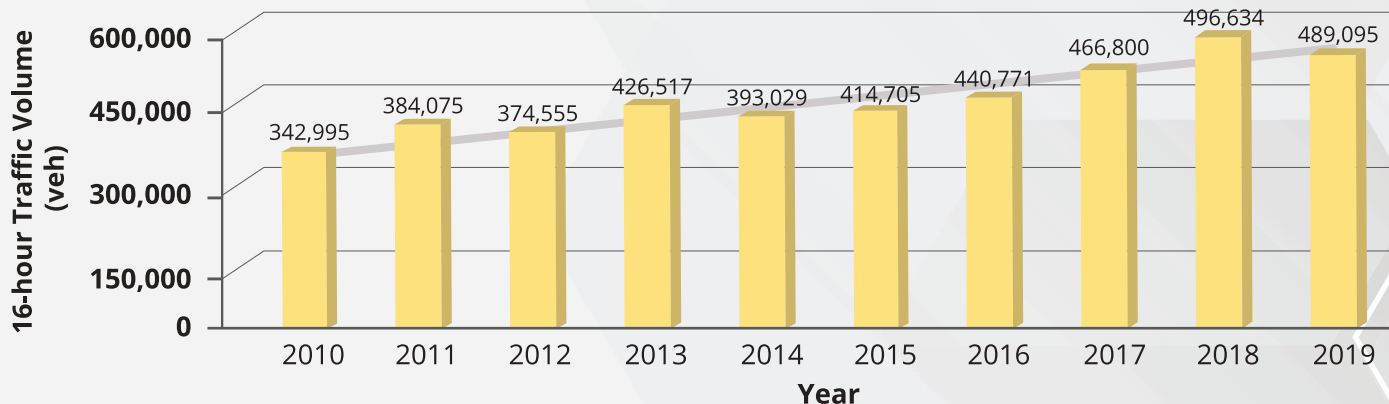
SR501	3,217	3,911	3,582	3,512	4,742	4,612	4,383	4,566	4,753	3,902	3.00	0.38
SR504	3,653	6,683	6,448	7,243	7,200	7,912	11,701	9,640	10,623	9,335	9.23	0.67

Limbang

SR502	4,037	8,335	4,144	4,660	4,638	4,926	5,063	6,389	6,593	6,576	3.17	0.08
SR503	19,032	13,519	11,014	12,742	11,150	12,807	13,245	15,221	14,901	21,415	2.19	0.10

Sarikei

SR601	1,665	2,088	2,169	2,321	3,177	3,821	4,600	4,388	4,989	4,235	12.28	0.81
SR602	1,808	1,866	2,033	2,144	2,448	3,300	2,408	2,877	3,113	3,368	7.01	0.82



$$y = 341187e^{0.0379x} \quad | \quad R^2 = 0.90$$

Normal Growth = 3.79%

Yearly 16-Hour Traffic Volume (2010-2019) & Normal Traffic Growth with Exponential Trendline for the Year 2019 in Sarawak

**1.52%
DECREASE**

There are 30 census stations in Sarawak. The 16-hour traffic volume shows a steady and gradual growth throughout the year 2010 until 2019, aside for years 2012 and 2014 which have undergone a slight drop in numbers of vehicles. For the year 2019, there is an decrease of 1.52% which is equivalent to 7,539 vehicles.



For the year 2019, the observed traffic growth rate for the state of Sarawak is 3.79%. The basis of traffic growth rate record is to be used as a projection indicator of subsequent traffic growth rate for road forethought as well as for the expansion of current and new roads in Sarawak.



LEMBAGA LEBUHRAYA MALAYSIA

STRETCH OF NORTH - SOUTH EXPRESSWAY (PLUS) E1 & E2

Toll Plaza	Traffic					
	Class 1	Class 2	Class 3	Class 4	Class 5	Total Traffic
Terbuka Dan Tertutup	406,016,611	18,674,747	17,632,752	3,695,178	5,814,277	451,833,565

Toll Plaza	Daily Traffic					
	Class 1	Class 2	Class 3	Class 4	Class 5	Total Traffic
Terbuka Dan Tertutup	1,112,374	51,164	48,309	10,124	15,930	1,237,900

STRETCH OF SHAH ALAM EXPRESSWAY (KESAS) E5

Toll Plaza	Traffic					
	Class 1	Class 2	Class 3	Class 4	Class 5	Total Traffic
Sunway	38,215,146	1,800,782	1,031,797	300,347	230,375	41,578,447
Awan Besar Timur	19,519,530	731,572	588,958	174,355	116,241	21,130,656
Awan Besar Barat	17,971,229	688,278	537,125	183,328	123,774	19,503,734
Kemuning	30,149,169	1,910,299	2,770,192	253,776	176,513	35,259,949

Toll Plaza	Daily Traffic					
	Class 1	Class 2	Class 3	Class 4	Class 5	Total Traffic
Sunway	104,699	4,934	2,827	823	631	113,914
Awan Besar Timur	53,478	2,004	1,614	478	318	57,892
Awan Besar Barat	49,236	1,886	1,472	502	339	53,435
Kemuning	82,600	5,234	7,590	695	484	96,603

NORTH - SOUTH EXPRESSWAY CENTRAL LINK (ELITE) E6

Toll Plaza	Traffic					
	Class 1	Class 2	Class 3	Class 4	Class 5	Total Traffic
Exit	105,275,549	5,116,191	5,220,978	3,639,834	1,381,511	120,634,063

Toll Plaza	Daily Traffic					
	Class 1	Class 2	Class 3	Class 4	Class 5	Total Traffic
Exit	288,426	14,017	14,304	9,972	3,785	330,504

STRETCH OF SUNGAI BESI EXPRESSWAY (BESRAYA) E9

Toll Plaza	Traffic					
	Class 1	Class 2	Class 3	Class 4	Class 5	Total Traffic
Mines	31,077,812	1,050,793	459,567	118,874	434,546	33,141,592
Loke Yew	24,228,090	298,706	108,301	163,907	128,419	24,927,423

Toll Plaza	Daily Traffic					
	Class 1	Class 2	Class 3	Class 4	Class 5	Total Traffic
Mines	85,145	2,879	1,259	326	1,191	90,799
Loke Yew	66,378	818	297	449	352	68,294

STRETCH OF NEW PANTAI EXPRESSWAY (NPE) E10

Toll Plaza	Traffic					
	Class 1	Class 2	Class 3	Class 4	Class 5	Total Traffic
Pantai Dalam	37,975,111	395,053	171,066	560,826	148,580	39,250,636
PJS 2	21,229,309	206,747	48,061	102,480	96,196	21,682,793
PJS 5	10,797,738	100,459	15,190	125,046	41,406	11,079,839

Toll Plaza	Daily Traffic					
	Class 1	Class 2	Class 3	Class 4	Class 5	Total Traffic
Pantai Dalam	104,041.40	1,082.34	468.67	1,536.51	407.07	107,535.99
PJS 2	58,162.49	566.43	131.67	280.77	263.55	59,404.91
PJS 5	29,582.84	275.23	41.62	342.59	113.44	30,355.72

STRETCH OF DAMANSARA - PUCHONG EXPRESSWAY (LDP) E11

Toll Plaza	Traffic					
	Class 1	Class 2	Class 3	Class 4	Class 5	Total Traffic
Puchong Selatan	36,152,665	1,145,942	505,370	326,465	171,534	38,301,976
Puchong Barat	27,259,728	1,103,581	544,504	167,121	104,476	29,179,410
Petaling Jaya	47,389,277	682,782	357,160	380,165	162,676	48,972,060
Penchala	41,829,773	3,460,173	1,599,623	1,247,296	556,489	48,693,354

Toll Plaza	Daily Traffic					
	Class 1	Class 2	Class 3	Class 4	Class 5	Total Traffic
Puchong Selatan	99,048	3,140	1,385	894	470	104,937
Puchong Barat	74,684	3,024	1,492	458	286	79,944
Petaling Jaya	129,834	1,871	979	1,042	446	134,170
Penchala	114,602	9,480	4,383	3,417	1,525	133,406

STRETCH OF AMPANG - KUALA LUMPUR ELEVATED HIGHWAY (AKLEH) E12

Toll Plaza	Traffic					
	Class 1	Class 2	Class 3	Class 4	Class 5	Total Traffic
Keramat	16,965,036	43,337	2,314	319,376	59,051	17,389,114

Toll Plaza	Daily Traffic					
	Class 1	Class 2	Class 3	Class 4	Class 5	Total Traffic
Keramat	46,480	119	6	875	162	47,641

STRETCH OF KEMUNING - SHAH ALAM HIGHWAY (LKSA) E13

Toll Plaza	Traffic						
	Plaza	Class 1	Class 2	Class 3	Class 4	Class 5	Total Traffic
Seri Muda	Alam Impian	10,620,646	330,034	110,963	34,026	44,576	11,140,245
Alam Impian	Seri Muda	15,202,231	480,433	276,393	87,532	66,618	16,113,207

Toll Plaza	Daily Traffic						
	Plaza	Class 1	Class 2	Class 3	Class 4	Class 5	Total Traffic
Seri Muda	Alam Impian	29,098	904	304	93	122	30,521
Alam Impian	Seri Muda	41,650	1,316	757	240	183	44,146

STRETCH OF BUTTERWORTH -KULIM EXPRESSWAY (BKE) E15

Toll Plaza	Traffic					
	Class 1	Class 2	Class 3	Class 4	Class 5	Total Traffic
Kubang Semang	13,818,827	375,385	491,614	89,937	196,085	14,971,848
Lunas	12,023,835	397,537	421,730	94,291	191,450	13,128,843

Toll Plaza	Daily Traffic					
	Class 1	Class 2	Class 3	Class 4	Class 5	Total Traffic
Kubang Semang	37,860	1,028	1,347	246	537	41,019
Lunas	32,942	1,089	1,155	258	525	35,969

STRETCH OF KAJANG - SEREMBAN HIGHWAY (LEKAS) E21

Toll Plaza	Traffic					
	Class 1	Class 2	Class 3	Class 4	Class 5	Total Traffic
Open	4,892,748	185,234	152,292	36,391	18,422	5,285,087
Close	19,601,047	694,514	485,478	156,966	62,368	21,000,373

Toll Plaza	Daily Traffic					
	Class 1	Class 2	Class 3	Class 4	Class 5	Total Traffic
Open	13,405	507	417	100	50	14,480
Close	53,701	1,903	1,330	430	171	57,535

STRETCH OF SPRINT EXPRESSWAY (SPRINT) E23

Toll Plaza	Traffic					
	Class 1	Class 2	Class 3	Class 4	Class 5	Total Traffic
Damansara	18,882,870	114,183	68,148	259,247	40,744	19,365,192
Pantai	27,934,041	233,474	90,970	204,750	69,875	28,533,110
Kiara	21,674,766	113,127	31,926	252,274	63,259	22,135,352

Toll Plaza	Daily Traffic					
	Class 1	Class 2	Class 3	Class 4	Class 5	Total Traffic
Damansara	51,734	313	187	710	112	53,055
Pantai	76,532	640	249	561	191	78,173
Kiara	59,383	310	87	691	173	60,645

STRETCH OF JAMBATAN PULAU PINANG (JPP2) E28

Toll Plaza	Traffic						
	Class 0	Class 1	Class 2	Class 3	Class 4	Class 5	Total Traffic
Jambatan Sultan Abdul Halim Mu'adzam Shah	612,966	1,386,600	57,769	18,933	3,157	18,278	2,097,703
Plaza A	-	2,092,444	83,979	33,568	11,007	42,293	2,263,291
Plaza B	-	1,029,486	67,891	49,173	3,846	83,449	1,233,845
Plaza C	-	3,680,814	179,782	103,941	15,567	143,860	4,123,964

Toll Plaza	Daily Traffic						
	Class 0	Class 1	Class 2	Class 3	Class 4	Class 5	Total Traffic
Jambatan Sultan Abdul Halim Mu'adzam Shah	1,679	3,799	158	52	9	50	4,068
Plaza A	-	5,733	230	92	30	116	6,201
Plaza B	-	2,821	186	135	11	229	3,380
Plaza C	-	10,084	493	285	43	394	11,299

STRETCH OF SEREMBAN - PORT DICKSON HIGHWAY (SPDH) E29

Toll Plaza	Traffic					
	Class 1	Class 2	Class 3	Class 4	Class 5	Total Traffic
Mambau	8,022,056	146,673	208,223	24,754	75,929	8,477,635
Lukut	1,903,185	49,688	38,072	10,574	8,563	2,010,082

Toll Plaza	Daily Traffic					
	Class 1	Class 2	Class 3	Class 4	Class 5	Total Traffic
Mambau	21,978	402	570	68	208	23,226
Lukut	5,214	136	104	29	23	5,507

STRETCH OF GUTHRIE CORRIDOR EXPRESSWAY (GUTHRIE) E35

Toll Plaza	Traffic					
	Class 1	Class 2	Class 3	Class 4	Class 5	Total Traffic
Bukit Jelutong	17,175,285	571,509	500,394	108,210	79,759	18,435,157
Elmina	10,881,275	495,121	447,657	70,259	53,110	11,947,422
Lagong	8,151,490	399,520	336,378	44,770	48,270	8,980,428

Toll Plaza	Daily Traffic					
	Class 1	Class 2	Class 3	Class 4	Class 5	Total Traffic
Bukit Jelutong	47,056	1,566	1,371	296	219	50,507
Elmina	29,812	1,356	1,226	192	146	32,733
Lagong	22,333	1,095	922	123	132	24,604

STRETCH OF JAMBATAN PULAU PINANG (JPP) E36

Toll Plaza	Traffic								
	Class 0	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Total Traffic
Jambatan Pulau Pinang	0	6,378,997	21,999,246	1,059,610	696,393	69,830	86,005	34,697	30,324,778

Toll Plaza	Daily Traffic								
	Class 0	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Total Traffic
Jambatan Pulau Pinang	0	17,477	60,272	2,903	1,908	191	236	95	82,751



ROAD MILEAGE

TOTAL ROAD MILEAGE BY STATE (KM)

State	Federal Road				State Road				Total			Grand Total
	Paved (Berturap)	Gravel (Kelikir)	Earth (Tanah)	Total	Paved (Berturap)	Gravel (Kelikir)	Earth (Tanah)	Total	Paved (Berturap)	Gravel (Kelikir)	Earth (Tanah)	
Johor	2,437.381	0.000	0.000	2,437.381	21,320.557	1,693.757	289.999	23,304.313	23,757.938	1,693.757	289.999	25,741.694
Melaka	320.028	0.000	0.000	320.028	5,469.376	196.262	123.508	5,789.146	5,789.404	196.262	123.508	6,109.174
N. Sembilan	1,398.935	0.000	0.000	1,398.935	14,474.429	276.528	66.843	14,817.800	15,873.364	276.528	66.843	16,216.735
Selangor	991.164	0.000	0.000	991.164	18,968.387	1,626.427	403.913	20,998.727	19,959.551	1,626.427	403.913	21,989.891
Perak	1,514.060	0.000	0.000	1,514.060	17,352.170	7,830.862	2,316.420	27,499.452	18,866.230	7,830.862	2,316.420	29,013.512
P. Pinang	190.575	0.000	0.000	190.575	3,821.432	1,053.353	47.254	4,922.039	4,012.007	1,053.353	47.254	5,112.614
Kedah	1,108.710	0.000	0.000	1,108.710	13,197.196	1,387.307	213.056	14,797.559	14,305.906	1,387.307	213.056	15,906.269
Perlis	247.195	0.000	0.000	247.195	1,603.025	545.948	169.800	2,318.773	1,850.220	545.948	169.800	2,565.968
Pahang	3,889.528	0.000	0.000	3,889.528	14,629.268	4,183.850	502.481	19,315.599	18,518.796	4,183.850	502.481	23,205.127
Terengganu	1,280.076	0.000	0.000	1,280.076	10,307.220	3,396.574	6,390.361	20,094.155	11,587.296	3,396.574	6,390.361	21,374.231
Kelantan	1,387.700	0.000	0.000	1,387.700	14,533.455	3,038.208	1,014.025	18,585.688	15,921.155	3,038.208	1,014.025	19,973.388
W.P Kuala Lumpur	22.453	0.000	0.000	22.453	1,517.000	0.000	0.000	1,517.000	1,539.453	0.000	0.000	1,539.453
W.P Putrajaya	0.000	0.000	0.000	0.000	147.991	0.000	0.000	147.991	147.991	0.000	0.000	147.991
Jumlah Kecil	14,787.805	0.000	0.000	14,787.805	137,341.506	25,229.076	11,537.660	174,108.242	152,129.311	25,229.076	11,537.660	188,896.047
Sabah	1,501.840	0.000	0.000	1,501.840	10,355.079	10,360.479	1,500.940	22,216.498	11,856.919	10,360.479	1,500.940	23,718.338
Sarawak	1,423.790	0.000	0.000	1,423.790	19,532.794	5,285.552	6,309.619	31,127.965	20,956.584	5,285.552	6,309.619	32,551.755
W.P Labuan	139.350	0.000	0.000	139.350	194.000	0.000	0.000	194.000	333.350	0.000	0.000	333.350
Jumlah Kecil	3,064.980	0.000	0.000	3,064.980	30,081.873	15,646.031	7,810.559	53,538.463	33,146.853	15,646.031	7,810.559	56,603.443
Lebuhraya Bertol	1,956.750	0.000	0.000	1,956.750	0.000	0.000	0.000	0.000	1,956.750	0.000	0.000	1,956.750
Jalan Milik Agensi	-	-	-	-	-	-	-	-	2,567.186	-	-	2,567.186
Jumlah	19,809.535	0.000	0.000	19,809.535	167,423.379	40,875.107	19,348.219	227,646.705	189,800.099	40,875.107	19,348.219	250,023.425

Source: Statistik Jalan Malaysia Edisi 2019, JKR

- Note :**
1. Perangkaan Jalan Persekutuan mengikut Warta Jalan Persekutuan sehingga 31.12.2018
 2. Perangkaan Jalan Negeri mengikut daftar MARRIS sehingga 31.12.2018
 3. Jalan W.P Putrajaya adalah di bawah kuasa Perbadanan Putrajaya
 4. Jalan Persekutuan Lebuhraya Bertol adalah di bawah bidang kuasa Lembaga Lebuhraya Malaysia.
 5. Jalan Milik Agensi adalah jalan di kawasan premis.

TOTAL MALAYSIA ROAD MILEAGE BY YEAR (KM) - 1955 UNTIL 2018

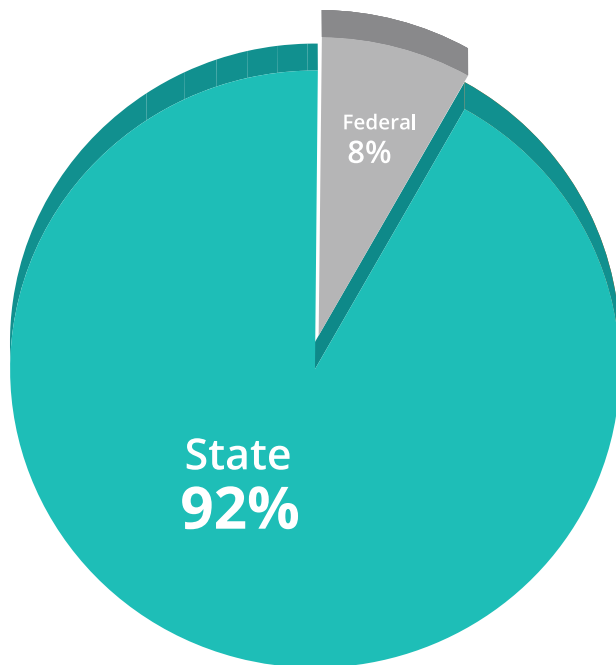


Figure 9: Distribution of Federal & State Road in Malaysia

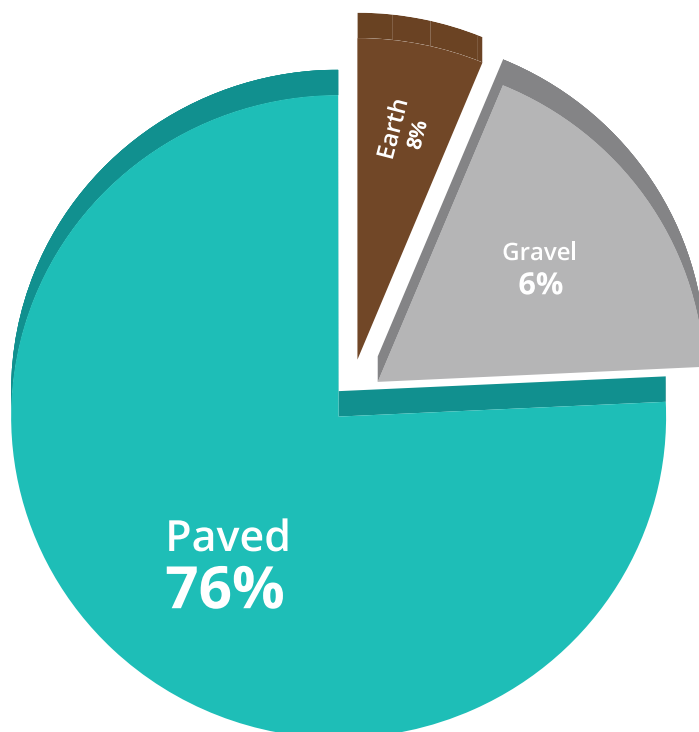


Figure 10: Distribution of Pavement Types in Federal & State Road in Malaysia

DISTRIBUTION OF FEDERAL & STATE ROAD NETWORK BASED ON ROAD LENGTH BY STATES IN MALAYSIA

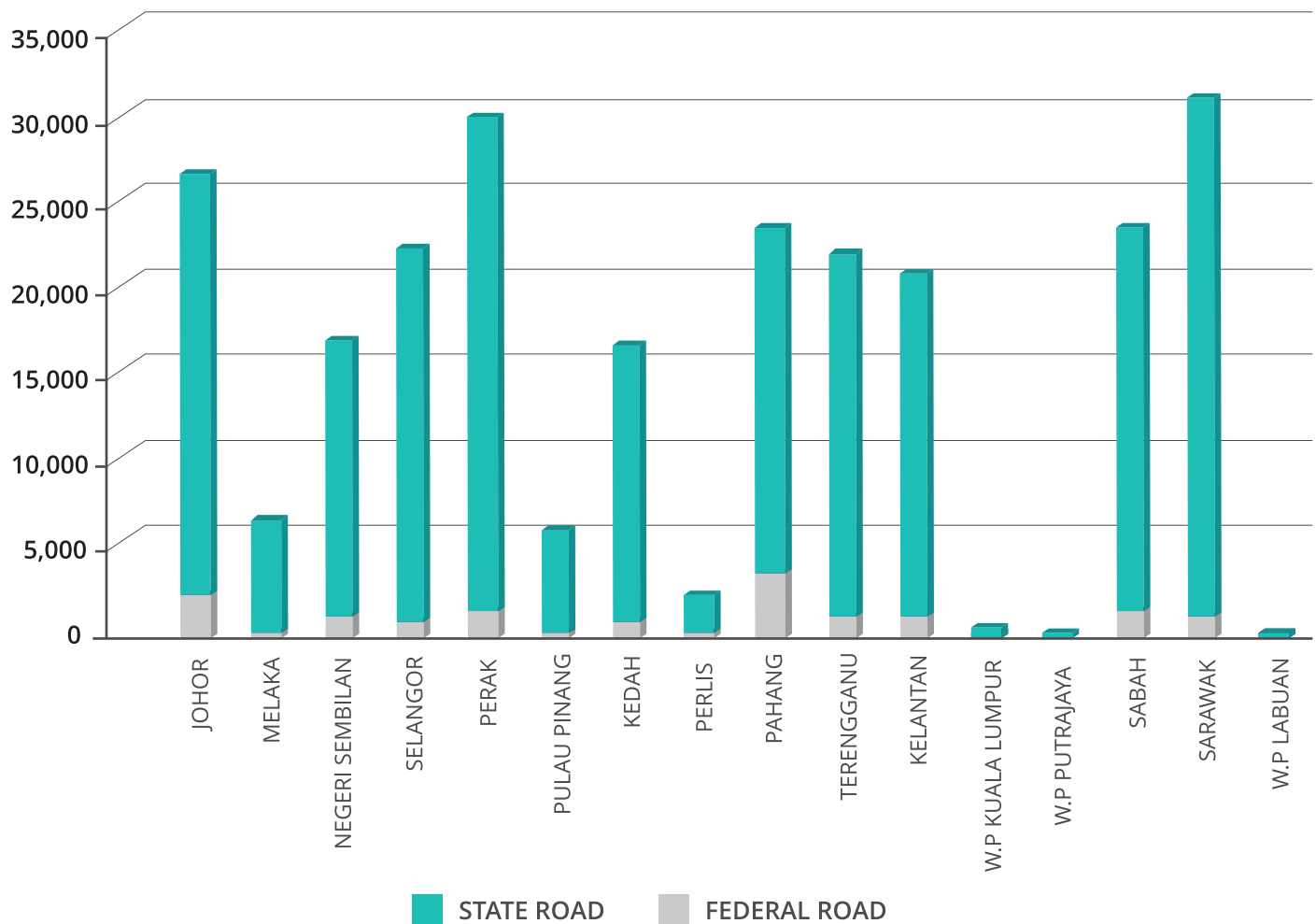


Figure 11: Distribution of Federal & State Road in Malaysia

Federal Road can be categorized as Main Federal Roads, FELDA/FELCRA Federal Roads, Road to Main Federal Institutions, Road to Industrial Area, Road to the Regional Development, Main Federal Roads in Sabah, Sarawak & W.P Labuan and Toll Expressways & Toll Highways.

State Road can be categorized as Main State Road, Municipal Roads, Low-Cost Housing Area Roads, Back Alley, Agricultural Road, Rural Roads and Tourist Island Roads.

The total mileage ratio of the Federal Road to the State Road is 1:2.

As shown in Figure 11, Sarawak have the highest total road mileage in Malaysia which include 1,423.79km of Federal Road and 31,127.97km of State Road which is also the highest of State Road mileage. Meanwhile, Perak is the second highest total road mileage in Malaysia which include 1,514.06km of Federal Road and 27,499.45km of State Road. The highest of Federal Road mileage is in Pahang which is 3,889.53km. Most of the road is asphalt and concrete pavement (76%), followed by gravel (16%) and earth (8%).



VEHICLE REGISTRATION

TOTAL CUMULATIVE OF NEW REGISTRATION OF MOTOR VEHICLES

By Type of Vehicle

Year	Motorcycle	Car	Taxi	Bus	Lorry & Van	Hire Car	Trailer	Other	Total
1986	2,522,173	1,419,542	23,973	21,222	306,980	3,947	26,467	115,645	4,439,949
1987	2,611,396	1,479,871	24,628	21,901	319,114	3,810	26,625	113,039	4,600,384
1988	2,702,932	1,549,600	25,132	23,346	328,594	-	26,503	122,655	4,782,916
1989	2,848,717	1,658,567	26,078	24,828	349,737	4,725	26,807	132,327	5,071,786
1990	3,035,930	1,811,160	28,811	26,803	380,330	5,666	27,348	146,730	5,462,778
1991	3,251,289	1,970,934	31,842	28,229	411,149	6,181	27,998	159,554	5,887,176
1992	3,473,643	2,107,005	34,178	30,013	442,401	6,791	28,744	172,733	6,295,508
1993	3,703,838	2,255,420	36,458	33,358	466,871	7,586	29,077	179,871	6,712,479
1994	3,977,047	2,426,546	40,088	34,771	495,736	10,279	28,788	196,834	7,210,089
1995	3,564,756	2,532,396	27,276	35,224	430,716	28,969	-	183,038	6,802,375
1996	3,951,931	2,886,536	49,485	38,965	512,165	9,971	-	237,631	7,686,684
1997	4,328,997	3,271,304	51,293	43,444	574,622	10,826	-	269,983	8,550,469
1998	4,692,183	3,452,852	45,643	54,590	599,149	10,142	-	269,983	9,124,542
1999	5,082,473	3,787,047	55,626	47,674	642,976	10,020	-	304,135	9,929,951
2000	5,356,604	4,145,982	56,152	48,662	665,284	10,433	-	315,687	10,598,804
2001	5,592,150	4,528,490	56,464	49,669	688,367	10,053	-	327,369	11,252,562
2002	5,825,960	4,974,850	57,920	51,008	711,738	10,107	-	344,058	11,975,641
2003	6,164,958	5,428,774	60,723	52,846	740,482	10,210	-	361,275	12,819,268
2004	6,572,366	5,911,752	65,008	54,997	772,218	10,661	-	377,835	13,764,837
2005	7,021,117	6,370,046	69,645	57,036	807,895	13,075	-	397,536	14,736,350
2006	7,458,128	6,941,996	70,409	59,991	836,579	11,638	-	411,991	15,790,732
2007	7,943,364	7,419,643	72,374	62,308	871,234	12,368	-	432,652	16,813,943
2008	8,486,486	7,956,735	76,307	63,645	914,967	16,811	-	455,595	17,970,546
2009	8,929,386	8,470,689	80,417	65,609	949,698	18,946	-	474,517	18,989,262
2010	9,427,427	9,055,993	85,443	67,676	990,585	22,223	-	497,987	20,147,334
2011	9,969,735	9,650,603	90,390	70,081	1,030,303	25,791	-	522,430	21,359,333
2012	10,522,476	10,250,916	90,965	71,099	1,071,018	32,389	-	539,132	22,577,995
2013	11,087,878	10,534,575	99,921	62,784	1,116,167	53,954	-	863,516	23,818,795
2014	11,629,265	11,199,910	105,689	65,044	1,159,872	58,945	-	882,467	25,101,192
2015	12,094,790	11,871,696	108,149	66,999	1,197,987	63,885	-	898,446	26,301,952
2016	12,677,041	12,997,839	99,705	59,977	1,191,310	26,094	-	1,191,310	27,613,120
2017	13,173,069	13,582,636	96,584	61,059	1,223,396	25,588	-	575,844	28,738,176
2018	13,725,918	14,189,693	95,058	62,022	1,262,064	29,541	-	592,229	29,956,525

Source: Road Transport Department of Malaysia, 2018

TOTAL CUMULATIVE OF NEW REGISTRATION OF MOTOR VEHICLES

Total Cumulative Of New Registration Of Motor Vehicles For Motorcycle, Car, Taxi, Bus, Goods Vehicle, Hire Car And Other Vehicle In Malaysia Until 2018

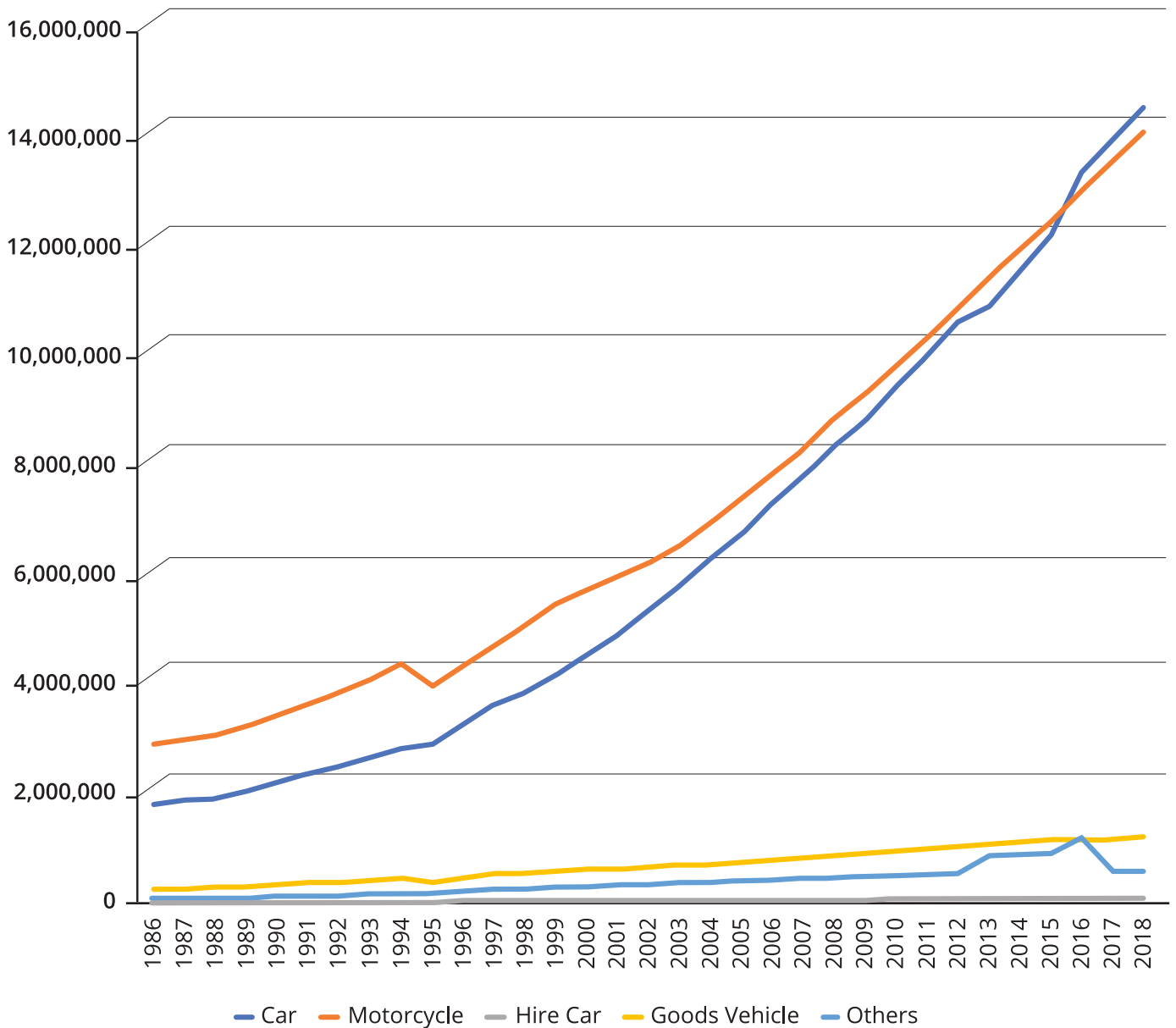


Figure 12: Total Cumulative Of New Registration Of Motor Vehicles For Motorcycle, Car, Taxi, Bus, Goods Vehicle, Hire Car And Other Vehicle In Malaysia Until 2018

Figure 8 shows the total cumulative of new registration of motor vehicles for cars, taxis, buses, goods vehicles, hire cars, and others for the years between 1986 to 2018. In year 2018, cars records the highest increase. An increase is observed for all types of vehicles except for taxi which decreased in numbers in the year 2018.

NEW REGISTRATION OF MOTOR VEHICLES

By State & Type of Vehicle 2018

Type of Vehicle	Private Vehicle		Public Vehicle			Lorry & Van	Other	Total
State	Motorcycle	Car	Bus	Taxi	Hire Car			
Perlis	2,721	256	0	0	0	69	31	3,077
Kedah	29,666	3,484	1	6	9	966	241	34,373
Pulau Pinang	32,105	4,826	37	19	39	3,161	624	40,811
Perak	23,424	3,311	60	4	4	2,146	649	29,598
Selangor	32,621	8,014	565	98	216	9,968	6,566	58,048
Wilayah Persekutuan	49,165	45,413	252	239	6,163	8,850	1,997	112,079
Negeri Sembilan	10,143	1,723	9	1	4	2,376	217	14,473
Melaka	8,518	2,053	2	1	0	510	240	11,324
Johor	35,266	10,334	52	172	32	5,365	1,724	52,945
Pahang	15,026	2,483	0	0	0	951	395	18,855
Terengganu	18,411	836	1	0	0	132	45	19,425
Kelantan	6,460	2,165	19	0	0	426	69	9,139
Sabah	19,665	11,173	11	5	48	1,909	1,341	34,152
Sarawak	21,070	9,937	9	3	49	2,897	2,438	36,403
Portal Rakan Niaga	248,480	494,305	0	27	34	989	125	743,960
Total	552,741	600,313	1,018	575	6,598	40,715	16,702	1,218,662

TOTAL CUMULATIVE OF MOTOR VEHICLES

By State & Type of Vehicle 2018

Type of Vehicle	Private Vehicle		Public Vehicle			Lorry & Van	Other	Total
	Motorcycle	Car	Bus	Taxi	Hire Car			
Perlis	88,476	26,968	186	190	1	2,071	1,415	119,307
Kedah	998,920	346,788	2,883	3,794	523	42,054	20,349	1,415,311
Pulau Pinang	1,453,874	1,139,019	4,770	4,314	500	84,493	27,740	2,714,710
Perak	1,394,838	777,934	4,881	4,664	81	78,419	43,502	2,304,319
Selangor	1,471,458	1,171,190	8,091	15,340	1,080	208,267	113,733	2,989,159
Wilayah Persekutuan	1,953,301	4,112,082	19,124	37,460	23,771	281,959	125,830	6,553,527
Negeri Sembilan	572,786	345,707	2,427	2,195	30	53,703	7,989	984,837
Melaka	486,002	347,791	1,490	1,893	56	29,145	9,140	875,517
Johor	1,927,431	1,515,031	7,749	12,019	240	161,064	68,248	3,691,782
Pahang	622,754	396,198	1,837	2,396	7	46,991	15,120	1,085,303
Terengganu	418,194	212,522	1,025	1,098	20	22,317	5,983	661,159
Kelantan	559,790	313,003	1,934	1,953	18	30,201	7,259	914,158
Sabah	414,079	665,547	2,861	5,082	945	116,968	67,005	1,272,487
Sarawak	830,315	829,675	2,764	2,134	565	99,560	75,627	1,840,640
Portal Rakan Niaga	533,700	1,990,238	0	526	1,704	4,852	3,289	2,534,309
Total	13,725,918	14,189,693	62,022	95,058	29,541	1,262,064	592,229	29,956,525

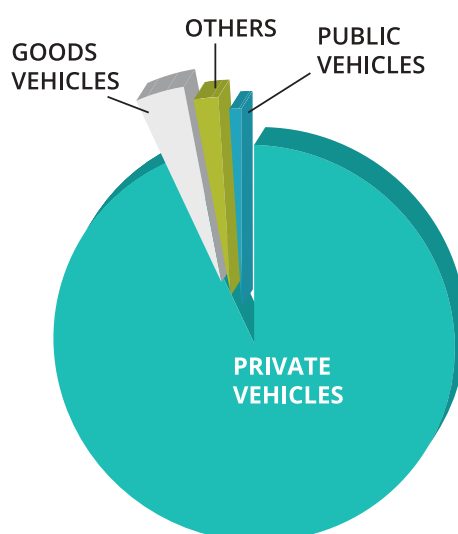


Figure 13 : By State and Type of Vehicle 2018

As recorded until 31 December 2018, the total accumulated motor vehicles in Malaysia are 29,956,525 vehicles. The total accumulated motor vehicles increased 4.2% in the year 2018. The motor vehicles can be categorized as Private Vehicles, Goods Vehicles, and Others. The composition of the 2018 accumulated motor vehicles are Private Vehicles 93%, Public Vehicle 1%, Goods Vehicle 4%, and Others 2%. The Private Vehicles includes 13,725,918 motorcycles and 14,189,693 cars. While the Public Vehicle includes 62,022 buses, 95,058 taxis and 29,541 hire cars.

Total New Registration of Motor Vehicles In Malaysia By State For The Year 2009-2018

State	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Perlis	4,566	5,434	4,202	5,475	3,627	6,266	5,709	3,936	3,090	3,077
Kedah	48,211	55,835	62,929	66,138	60,915	55,969	50,130	40,283	35,875	34,373
Pulau Pinang	92,320	111,882	106,514	113,340	92,863	91,505	56,515	47,108	39,582	40,811
Perak	78,040	84,199	87,577	94,952	82,438	71,812	47,496	41,292	30,632	29,598
Selangor	87,465	105,787	101,439	103,681	101,757	118,698	99,777	76,231	59,722	58,048
Wilayah Persekutuan	272,373	306,513	328,578	359,239	356,897	293,622	168,453	115,409	102,800	112,079
Negeri Sembilan	30,931	34,168	33,736	35,446	30,384	31,260	26,543	19,472	15,509	14,473
Melaka	30,919	33,692	33,530	36,354	29,761	30,267	23,598	17,803	13,887	11,324
Johor	130,485	145,040	155,611	172,608	161,963	143,029	93,235	75,888	58,978	52,945
Pahang	41,543	44,646	48,464	50,180	44,904	37,411	29,373	23,971	19,526	18,855
Terengganu	30,170	33,086	32,165	35,663	30,252	25,272	17,836	15,566	15,135	19,425
Kelantan	40,732	45,686	44,591	51,189	41,951	40,436	27,880	17,461	10,764	9,139
Sabah	58,834	69,301	79,229	85,049	74,124	73,355	49,605	37,096	33,101	34,152
Sarawak	70,772	82,803	93,434	102,435	90,838	91,028	63,162	41,750	39,069	36,403
Portal Rakan Niaga	0	0	0	0	0	172,006	441,448	528,769	648,205	743,960
Total	1,017,361	1,158,072	1,211,999	1,311,749	1,202,674	1,281,936	1,200,760	1,102,035	1,125,875	1,218,662

New Registration Of Motor Vehicles In Malaysia By State

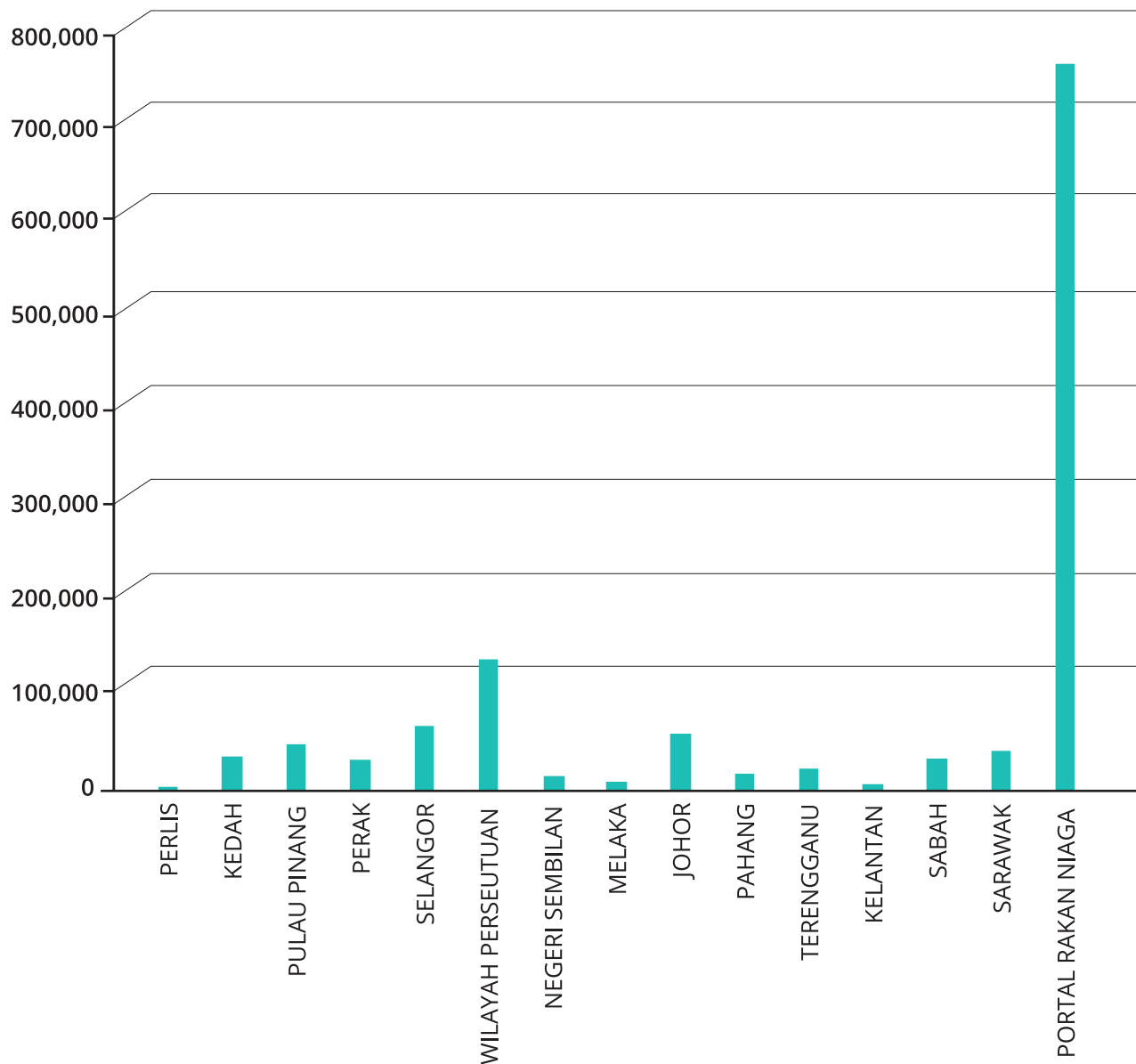


Figure 14: New Registration of Motor Vehicles In Malaysia By State







As shown in Figure 14, 743,960 of new motor vehicles in 2018 were registered in Portal Rakan Niaga. Portal Rakan Niaga allows vehicle registration management via online transaction since year 2014. Based on the highest number of registration via Portal Rakan Niaga, it indicates that people prefer to switch to the online transaction to manage their vehicle registration. This might be one of the reasons most of the states are showing a decreased of vehicle registration except Wilayah Persekutuan Kuala Lumpur with 112,079 number of new vehicle registration.



APPENDICES

Rajah 1: Peta Jalan Persekutuan
Semenanjung

VEHICLE CLASSIFICATION

KELAS	JENIS KENDERAAN
<p>Motorcars , Taxis & Small MPV's</p> <p style="text-align: center;">1</p>	 <p>Small MPV's :- Proton Exora, Proton Alza, Honda Stream, Toyota Wish, Naza Ria, etc.</p>
<p>Small Vans, Big MPV's & Utilities</p> <p>(Light 2 axles)</p> <p style="text-align: center;">2</p>	 <p>Big MPV's :- Toyota Alphard/Vellfire, etc.</p>
<p>Lorries & Large Vans</p> <p>(Heavy 2 axles)</p> <p style="text-align: center;">3</p>	 <p>Large Vans :- 12 Seater and Above</p>
<p>Lorries with 3 axles (Heavy 3 axles and above)</p> <p style="text-align: center;">4</p>	
<p>Buses</p> <p style="text-align: center;">5</p>	
<p>Motorcycles & Scooters</p> <p style="text-align: center;">6</p>	 <p>Including 3 Wheel Motorcycle</p>

[Borang (BP)] J.K.R.335 Pin.5/93]



Borang : KKR-B42
 No Keluaran : 3
 No Pindaan : 3
 Muka Surat : 1 / 1

Bahagian Perancang Jalan
 KEMENTERIAN KERJA RAYA MALAYSIA

LAPORAN BANCI LALU LINTAS KEBANGSAAN

Rekod Kiraan Manual

Negeri : _____	Daerah : _____	Tarikh : _____					
No. Stesen : _____	*Jenis Kajian : 0 / 1 / 3	Hari : _____ Hari ke : _____					
Maklumat Lokasi							
Lokasi : KM _____	Seksyen _____	Had Laju _____					
No. Laluan _____	Jalan _____	Koordinat: N :°'					
Deskripsi lokasi / Landmark berhampiran _____		E :°'					
Lalulintas dari _____	ke _____	*Arah : 1 / 2					
Maklumat Lorong							
*Jenis Lorong : Tunggal / Berkembar	Jumlah Bilangan lorong : _____	Lebar selorong : _____ m					
Maklumat Bahu Jalan							
*Bahu Jalan : Ada / Tiada	*Jenis bahu jalan: berturap / tanah / kerikil	Lebar bahu jalan berturap (sebelah) : _____ m					
Maklumat Keseragaman Jalan (lingkungan 1km dari stesen banci)							
*Bil. lorong : seragam / tidak seragam	*Keadaan jalan : berbukit / rata	*Lebar lorong : seragam / tidak seragam					
Masa	Motokar dan Teksi	Van kecil & Utiliti (Ringan - 2 gandar)	Lori & Van Besar (Berat - 2 gandar)	Lori dengan 3 Gandar atau Treler (Berat - dan melebihi 2 gandar)	Bas	Motosikal	Jumlah
0600-0700							
0700-0800							
0800-0900							
0900-1000							
1000-1100							
1100-1200							
1200-1300							
1300-1400							
1400-1500							
1500-1600							
1600-1700							
1700-1800							
1800-1900							
1900-2000							
2000-2100							
2100-2200							
2200-2300							
2300-2400							
0000-0100							
0100-0200							
0200-0300							
0300-0400							
0400-0500							
0500-0600							
Jumlah							

Catatan : *potong yang tidak berkenaan **Tandatangan, Cop Nama & Jawatan dan No. Tel. Untuk Dihubungi

**Disediakan oleh (Ketua Stesen Banci):

Disahkan oleh:



**HIGHWAY PLANNING DIVISION
MINISTRY OF WORKS MALAYSIA**

2nd Floor, Block A, Kompleks Kerja Raya,
Jalan Sultan Salahuddin,
50580 Kuala Lumpur

