

## CHAPTER II

### DETERMINATION OF PRESENT AND FUTURE TRAFFIC

#### Choice of a Base Year Figure

In order to calculate the operating cost of vehicles on the four roads under analysis, it is necessary to know how much the roads will be used and to estimate how much it will be used in the future. Problems arise in the measurement of traffic volume because of the lack of statistics. The only data available are those collected in the recent traffic survey conducted along Gombak road in April, 1964. (Gombak road forms part of the Kuala Lumpur-Kuantan highway between Setapak junction and the junction where route 1 deviates from route 2 as shown in the map). As the survey lasted only one week, the data might not be too reliable. Limitations arise as a result of the short length of the survey which could not take into account fluctuations in traffic volume. Seasonal variations in traffic arising from climatic reasons or from the nature of economic activities may give rise to inaccuracies which will be magnified if the base year figure for forecasting purposes is to be derived from the survey figure.

However, a comparison of the survey figure (calculated for one month) and the Temerloh traffic figure for April, 1964 (obtained from the public works department, Central Pahang) indicates that the difference is not large.<sup>1</sup> This means that it is justifiable to use the survey figure to derive the base year figure for future projections in traffic volume, since no other data are

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<sup>1</sup>The reason for using Temerloh figures as a basis of comparison is that Gombak and Temerloh both lie on the Kuala Lumpur-Kuantan highway. Gombak survey figure exceeds Temerloh figure by only 3,559 in one month. This difference is due to the fact that about 29% of the vehicles operate between Bentong and Kuala Lumpur and do not pass through Temerloh. This 29% is greater than the difference in Gombak and Temerloh traffic. Temerloh traffic would therefore be heavier if it included this 29% of the Gombak traffic.

available for comparisons and for possible adjustments to be made.

The base year figure, calculated from the Gombak survey figure is 505,152. This figure is relevant for existing Highway I, existing Highway II and the Tunnel Road.

In the determination of the base year figure for Klang Gates Road, a slight alteration has to be made. Although Klang Gates Road will be more or less located in the same area and will form a new section of the Kuala Lumpur-Kuantan Highway, it need not necessarily carry all the traffic that the existing highway bears. Twenty-nine per cent of the Gombak traffic (i.e. traffic using existing Highway II) will not be expected to use Klang Gates Road. This is because traffic coming from Temerloh and going to Bentong, or traffic coming from Bentong and going to Temerloh will definitely use the existing Highway. There is also doubt as to whether westbound traffic from Bentong and eastbound traffic to Bentong will prefer to operate on Klang Gates Road since it is a longer route (although with less severe gradient and curvature). To be more conservative in our calculations, the base year figure of 505,152 will have to be reduced by 29%, that is, the base year figure for Klang Gates Road will be 359,427.

#### Forecast of Traffic up to 1973 - Tunnel Road.

Forecasting is based on the use of annual percentage increases in traffic in the past years. Since a percentage increase in Gombak traffic in the past years cannot be calculated because of the lack of data, two percentage increases calculated from other traffic figures have to be used:

- (1) Average annual percentage increase based on Temerloh traffic. Since data for Temerloh traffic are available and since the difference in traffic volume between Gombak and Temerloh is not very significant, one forecast will be based on the average annual percentage increase in Temerloh traffic from the years 1953 to 1964 (using 1961 figures).
- (2) An average 9.12% increase in Temerloh traffic against existing Highway I, assuming that the forecast will be based on the existing traffic in the





In which 500,000 acres of land will be cleared, half of which will be planted with rubber in the area bounded by Serantut, Senorlon and Aman. Rubber production is expected to begin in 1972 during which time an increase in the volume of traffic will be necessitated. It is estimated that production in the first year will be only 500lbs. per acre, increasing by 200lbs. a year until 1976 onwards when the yield will remain constant at 1400lbs. per acre. Table 3 shows the number of 8-ton trucks required to transport certain rubber products.

TABLE 1

FORECAST OF TRAFFIC IN TOWNHIP ROAD  
1964-1975

Year	Gombak Traffic Using 23.895 inc.	Gombak Traffic Using 55.225 inc.	Average
1964	503,152	503,152	503,152
1965	648,513	635,352	654,437
1966	335,268	919,935	377,926
1967	1,077,350	1,244,284	1,160,877
1968	1,333,596	1,632,142	1,535,369
1969	1,739,761	2,274,592	2,032,176
1970	2,305,823	3,075,753	2,691,263
1971	2,975,264	4,158,900	3,556,115
1972	3,832,240	5,625,754	4,727,997
1973	4,939,374	7,604,440	6,271,907
1974	6,355,359	10,232,724	8,324,541
1975	8,205,600	13,904,200	11,054,944

FIGURE 1

FORECAST OF TRAFFIC IN TUNNEL ROAD  
1964-1975

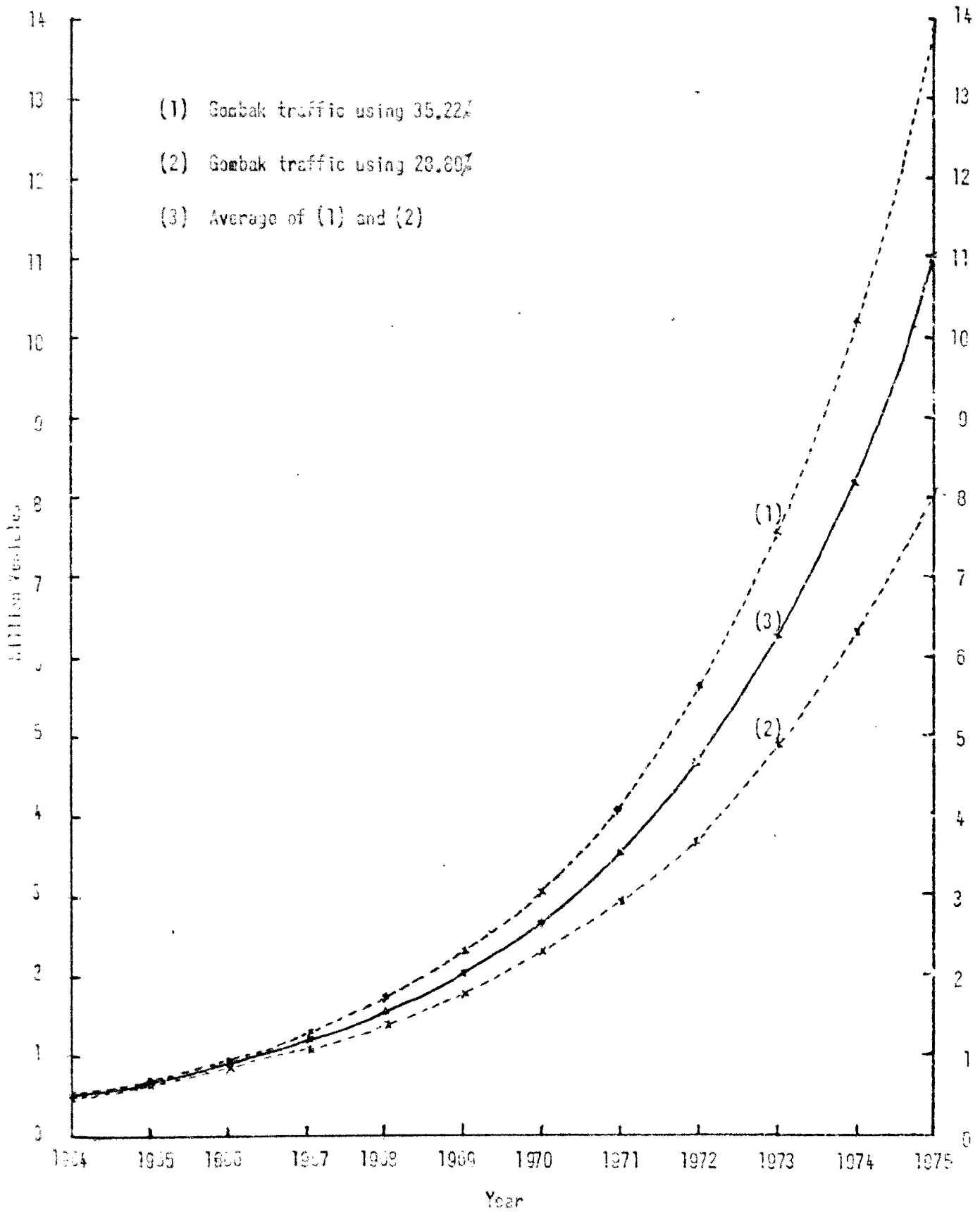


TABLE 2

ACCOUNT OF TRAFFIC BY TYPE OF VEHICLE IN TUNNEL ROAD, 1964-1975

Year	Total traffic	No. of 5-ton trucks at 34.88¢	No. of 6-ton trucks at 10.46¢	No. of vans at 1.18¢	No. of buses at 0.91	No. of cars at 41.04¢	No. of taxis at 3.51¢
1964	563,152	175,493	52,730	5,937	49,731	206,404	17,661
1965	604,637	231,750	61,533	7,040	59,201	272,665	23,372
1966	677,926	365,220	92,997	10,306	75,223	302,361	30,815
1967	1,159,677	404,044	121,639	13,096	103,116	376,831	49,760
1968	1,535,360	535,537	166,397	18,117	136,361	695,116	68,931
1969	2,036,176	709,023	232,972	23,660	161,567	836,930	71,320
1970	2,691,253	889,713	282,064	31,757	231,732	1,139,635	96,463
1971	3,356,115	1,263,061	373,729	42,890	317,761	1,463,335	146,171
1972	4,777,567	1,669,126	659,634	55,779	401,265	1,846,176	159,053
1973	6,271,197	2,197,441	974,236	74,000	599,267	2,592,131	229,144
1974	8,324,511	2,935,566	1,224,112	99,230	791,717	3,449,339	242,181
1975	11,064,344	3,055,974	1,173,153	139,480	904,006	6,516,096	366,020

Table 3

NUMBER OF 5-TON TRUCKS REQUIRED TO  
 TRANSPORT GRAIN FROM HARVESTERS  
 1972-1975

Year	Total Production (lbs.)	No. of 5-ton trucks
1972	90,000,000	5,022
1973	120,000,000	6,596
1974	150,000,000	8,371
1975	180,000,000	10,145

This increase in traffic due to rubber production has to be added on to the total forecasted traffic as well as to the number of 5-ton trucks which will be required, while the number of the other types of vehicles will remain unchanged.

Forecast of traffic on the Kiang, Kates Road

It is assumed that the percentage of traffic going to Bentong or coming from Bentong will remain constant throughout the years under forecast. This means that the annual traffic on Kiang, Kates Road will correspond to the annual traffic on Bentong Road less 20% (to exclude Bentong traffic). This is calculated for a period of 10 years from 1964 to 1975 (see table 4 under the column entitled "Total traffic").

Just as in the earlier work, a breakdown of the total traffic is necessary for the determination of road user costs and this is based on the percentage of each type of vehicle to total vehicle traffic (less Bentong traffic), as shown in Appendix II. From this, the breakdown of the forecasted traffic on Kiang, Kates Road will be derived (see table 4).



TABLE 4

## FEDERAL TRAFFIC BY TYPE OF VEHICLE IN KANSAS STATES ROAD, 1964-1975

Year	Total traffic	No. of 5-ton trucks at 35.01	No. of 3-ton trucks at 10.52	No. of vans at 1.134	No. of buses at 18.304	No. of cars at 20.131	No. of taxis at 3.634
1964	355,427	124,435	37,301	4,230	30,000	189,140	13,013
1965	400,359	154,323	63,377	5,525	48,344	193,744	17,376
1966	520,167	217,120	66,242	7,300	63,077	249,726	23,732
1967	619,903	267,049	66,254	9,757	64,450	320,992	31,492
1968	1,004,565	373,713	114,002	12,997	111,712	424,615	41,549
1969	1,435,530	502,579	131,019	17,023	147,640	546,010	54,991
1970	1,931,160	655,570	144,997	22,063	195,914	744,284	72,012
1971	2,519,104	881,398	204,010	29,977	259,463	930,230	90,492
1972	3,334,608	1,160,204	241,353	39,744	344,016	1,257,559	127,917
1973	4,430,470	1,551,110	307,939	52,723	459,330	1,734,931	160,067
1974	5,000,456	2,050,743	419,824	69,977	609,997	2,392,150	215,221
1975	7,209,213	2,734,006	521,929	92,930	814,340	3,067,367	290,623

\* Traffic on Tunnel Road less Dantony traffic (20)