

CHAPTER 4

CONCLUSIONS AND RECOMMENDATIONS

The conclusions of the study of trip generation and personal mobility in Amphoe Ban Tak, Changwad Tak can be summarized as follows:--

1. Amphoe Ban Tak, one of seven Amphoes in Changwad Tak, is selected as a study area and is administratively divided into seven Tambons which are further subdivided into fifty-nine Mubans. In accordance to the record of the Department of Local Administration in 1976, the area is about 1,060 square kilometers and there is 5,620 households. The general geography of the area is hilly with the strip of a flat terrain formed along Ping river and Asian Highway No.1.

The population in Amphoe Ban Tak recorded in 1976 is 37,104 and the population density in seven Tambons varied from 18 to 73 persons per square kilometer. The populous area is the area along the transport corridor either on the bank of Ping river or along Asian Highway No.1. The average household size, considered to be a medium size, is 5.38 persons per household. About 50 percent of the population is less than 20 years of age. Most of occupation of the family worker in Amphoe Ban Tak is agriculturist. Furthermore, the educational level of the population is under or equivalent to Pratom 4.

2. The average annual family income in Amphoe Ban Tak is about 13,516 baht whereas the calculated per capita income is 2,512 baht annually which is lower than the National Income per capita in 1976 by 3,619 baht. Most of household head is agriculturist and he can earn not more than 5,000 baht annually.

3. The road network in Amphoe Ban Tak is consisted of five major roads namely Asian Highway No.1, Feeder Road No.1050, Feeder

Road No.1107, Feeder Road No.1175 and Ban Nong Nam-Ban Thung Kracho Feeder Road. The average daily traffic in 1976 on Asian Highway No.1, Feeder Road No.1050 and Feeder Road No.1107 are 2,164, 444 and 603 vehicles per day, respectively.

4. The average growth factor of vehicle registration in Changwad Tak from 1967 to 1975 increased by a factor of 3.37. Among the growth factors by types of vehicle, truck registration shows the highest growth factor of 3.80 whereas bus registration shows the lowest growth factor of 1.09 during same period.

5. There are 8 bus service lines in the study area which comprise of local bus lines and bus line No.1152 which runs between Tak City and Phumipol dam, approximately 62 kilometers long. Three types of bus namely, medium size bus, mini bus and micro bus with a seating capacity ranging from 15 seats to 40 seats are in services.

6. Trip generated in the study area were classified into two main groups with regard to purposes namely work trip and non-work trip. The average monthly home-based trips per household is 60 trips of which 41 percent is work trip and 59 percent is non-work trip. It is clear that the majority of trips being made is Intra-Tambon trip. Furthermore, the total home-based trips monthly generated in the study area is estimated to be 350,000 and 25 percent of these trips is generated from Tambon Tak Ok which is the central business district of the study area.

7. In the preliminary analysis of the relationships between the trip production rate and socio-economic activities, it was found that home-based monthly trips increase with an increase of number of persons in a household. Moreover, the number of persons 7 years of age and older, number of pupils and number of family workers in the household are important factors affecting trip generation rates. The number of home-based trips generated by a household always

increase with increase of number of bicycle & motorcycle owned as well as increase of family income.

8. Multiple linear regression analysis was used to formulate the relationship between the trip generation rate and household socio-economic activities i.e. family size, family income and vehicle ownership. As a result of this analysis, the acceptable equation of the trip generation rate for each Tambon and Amphoe Ban Tak are as follows:-

Tambon Tak Ok

$$Y = -15.46 + 15.38X_2 + 0.0006X_4 \quad R^2 = 0.72$$

Tambon Mae Salit

$$Y = 15.00 + 7.11X_2 + 12.50X_5 \quad R^2 = 0.67$$

Tambon Samo Khon

$$Y = 6.73 + 9.32X_2 + 6.95X_5 \quad R^2 = 0.79$$

Tambon Ko Taphao

$$Y = 13.47 + 8.39X_2 + 7.02X_5 \quad R^2 = 0.70$$

Tambon Tak Tok

$$Y = -10.91 + 13.30X_2 + 0.0003X_4 \quad R^2 = 0.68$$

Tambon Thung Kracho

$$Y = 11.83 + 6.44X_1 + 8.16X_5 \quad R^2 = 0.70$$

Tambon Thong Fa

$$Y = 10.80 + 7.77X_2 + 8.32X_5 \quad R^2 = 0.72$$

Amphoe Ban Tak

$$Y = 7.62 + 6.44X_2 + 3.11X_3 + 10.23X_5 \quad R^2 = 0.69$$



where

- Y = home-based monthly trips
- X_1 = number of persons per household
- X_2 = number of persons 7 years of age and older
per household
- X_3 = number of family workers per household
- X_4 = family income, baht/year
- X_5 = number of pupils per household
- R^2 = coefficient of multiple determination

9. Category analysis which classified by family income, household size and family workers indicated that trip generation rate varies as the increase of these three variables.

10. It was found that walking mode is the dominant mode of travel which accounts for 65 percent of total travel of all modes. The next to the walking mode are bicycle and local bus modes.

11. The average trip length in the study area ranges from 4 to 7 kilometers. It is interesting to note that due to the fact that work site is not far from home average trip length for non-work trip is longer than that for work trip.

12. The personal mobility can be expressed as number of trips-kilometers produced by a Tambon during a period of time. It was found that the highest personal mobility index is achieved in Tambon Tak Ok since it is the CBD of the study area and can be accessed conveniently by various modes of transportation. Tambon Thong Fa is situated in undeveloped area and can be accessed only by earth track yields the lowest personal mobility index.

Recommendation for Future Study

An extension of this study should be made in regards to the trip distribution model for the study area. As a result of the further analysis, transportation facilities could be well planed to serve travel need in the future.