

Thesis Title Design of Bus Network : Case Study of Chiang Mai City

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Abstract

The main purpose of this research is to develop a methodology and computer software of bus network design given the fixed travel demand data by using the city of Chiang Mai as a study.

Computerized mathematical approach has been used to search for the least transportation cost bus network. The costs considered are bus operating costs of the operators, and travel time and waiting time costs of the bus passengers. The methodology consists of 4 sequential steps: (1) data collection, (2) possible bus routes generation, (3) alternative bus networks generation, and (4) bus network selection.

Ten FORTRAN computer programs has been prepared for running on " SUN SPARC Server 330" minicomputer in sequential mode, and found out that the programs work satisfactorily. However, as the methodology requires a number of computation sequences and the speed of minicomputer

is still limited, the computer running time is a crucial factors limiting no. of possible bus routes analysed. In case of Chiang Mai city, the possible bus routes should be limited to 40 routes.

The application of the methodology to the design of bus network (bus capacity 50 persons/bus), using the available public transport demand data, results in the network consisting of 9 routes, total length of 178 kilometres and the bus transportation cost of 75 million bahts per peak hour.