     The traffic problem in Bangkok effects a massive population. The aim of this thesis was to develop a computer program simulating traffic conditions in Bangkok, using statistics of traffic conditions between 1996 - 1998. The program was developed by software development methodology. First, the details of roads and junctions in central Bangkok were transformed into a network node-link system. Then the vehicles in the node-link system were defined and separated into two groups. Personnel vehicles can move randomly in the node-link system and mass transit vehicles use fixed node-link paths in the system.

     Generation methods were described in terms of the mathematical methodology of probability and distribution including random methods.

     At the end of study, the node-link system and queue were represented by a graphic program. This program contains variable parameters of the mathematical model. These parameters can be altered interactively.

     The deliverable item from this thesis is a traffic simulation program that can be used to study and improve traffic conditions in Bangkok, by using a what-if analysis that changes parameters in the simulation program. The basic idea is that traffic conditions and problems in Bangkok are different from other cities. It is recommended a Thai researcher use Software Development Methodology to study and improve the local traffic problem in Bangkok.