ABSTRACT

This thesis attempts to develop a prototype of a computerized layout planning software, named COMPLAN (Computerized Layout Planning). COMPLAN assists layout planners in making effective and timely decisions on facilities layout planning.

Various layout planning theories and techniques were investigated. The knowledge and understanding obtained through the investigation helps identify the most appropriate layout planning methodology for use in the development of COMPLAN. Since the introduction of the first computerized layout planning software in 1964, several computer-based layout planning tools have been proposed to further enhance the capabilities of their precursors. However, these packages still have a number of shortcomings, resulting in limited applicability, and questionable fidelity of the layouts generated.

COMPLAN was developed, considering capabilities and limitations of the previous systems. The prototype employs a graphical user interface (GUI) to enhance the system's ease of use. Delphi was selected as the system's programming language, since it can be operated on Microsoft Windows, a famous and widely used operating system. The program analyzes, designs, and evaluates facilities layouts via the closeness relationships. Practical layout plans are generated and displayed in graphics. Evaluation of alternatives and selection of the most appropriate layouts can be accomplished through weighted factor scoring.