IMPROVED CUSTOMER SERVICE

AND

AUTOMATED ROUTE VERIFICATION

FOR THE ISSUANCE OF

SPECIAL HAULING PERMITS

BY THE

NEW YORK STATE DEPARTMENT OF TRANSPORTATION

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EXECUTIVE SUMMARY

This report presents a design for an electronic permit issuance system for overdimensional and/or overweight vehicles with nondivisible loads. The system has been designed in collaboration with, and for use by, the New York State Department of Transportation (NYSDOT), but the major elements of the design (if not the specific details) should be transferrable to other states or agencies. The effort in this project has focused both on improving the efficiency of the special hauling permitting processes of the NYSDOT and on improving the level of service offered to NYSDOT's customers - truckers, construction companies, and others applying for permits. The electronic system is designed to replace a largely manual system of data checking, route verification and permit issuance. By linking personal computers at transmission companies (third parties that prepare and submit permit applications for truckers) directly to computers at NYSDOT and equipping these computers with automated route verification capability using a geographical information system (GIS), improved service can be offered at a reduced cost to the state.

There are four major elements to the system design. First, a relational database structure has been developed to store information on applications and permits issued. Second, the rules associated with various restrictions on permits issued have been encoded. Third, an effective user interface for both the transmission company and the state's permit engineers has been created. Finally, a Geographical Information System (GIS) has been incorporated to allow both point-and-click route selection at the transmission company and automated route verification at NYSDOT. This report describes each of these major elements.

A relational database has been designed to maintain all the information related to the special hauling permit issuance activity. This database structure is to be implemented by NYSDOT, using Oracle on a Unix-based server in the Commercial Vehicle Safety Bureau in Albany. Maintained within the database is all the information currently known about each permit application and customer. The database has three main groups of tables, containing information regarding accounts (customers), applications, and definitions.

Most restrictions applying to a permit are determined using a series of "if-then" rules, and most of these rules can be encoded in the system quite easily. However, some of the rules on restrictions are dependent on the load classification or category of the movement. In the current manual system, that information is written in by the applicant. For effective automated operation, it is necessary that the declaration of the load or vehicle category not be ambiguous. Thus, we have created a specific list of categories for vehicles and loads which are relevant for determining restrictions, and made this list available to the applicant through a graphical user interface (GUI).

The user interface has been designed with two parts, one suitable for an agent at a permit submission service (transmission company) who is entering the data for a specific application, and the other for users at NYSDOT. The NYSDOT interface includes three different "views" of the data: one for the permit engineer at the CVSB who is reviewing the application, one for a structural engineer who must review only a specific aspect of the application, and one for an accounts manager who must oversee the financial transactions

between the CVSB and permittees or transmission companies.

The permit submitted in electronic form contains all the required information for automated route verification, and at the same time is easier to use than the current paper-based system. Once a trip permit application has been loaded into the database, it is evaluated by the verification software. The verification software determines whether the route provided forms a continuous route and whether the vehicle and load dimensions are compatible with the infrastructure for the the dates that the permit would be in effect. This is accomplished by comparing the route information to a series of text files which contain the design characteristics and maintenance characteristics (by direction of travel) of-the highway network and bridges.

Taken together, these four major elements allow the implementation of an "intelligent" permitting system. This project is a direct contribution to the implementation of the concepts of Intelligent Transportation Systems (ITS) in New York State. An electronic permitting system contributes to the two main goals established within the ITS functional area of commercial vehicle operations (CVO) - increasing the safety and efficiency of commercial vehicle movements and their associated regulatory activities.