

1. INTRODUCTION

1.1 PURPOSE

This is the third edition of a document intended to provide interested persons with complete information on applying the DOT Rail-Highway Crossing Resource Allocation Procedure. The material is presented in non-technical terms with references given to the relevant technical reports.

1.2 BACKGROUND

The Highway Safety Acts of 1973 and 1976 and the Surface Transportation Assistance Acts of 1978 and 1982 and the Surface Transportation and Uniform Relocation Assistance Act of 1987 provide funding authorizations for individual states to improve safety at public rail-highway crossings. Safety improvements frequently consist of the installation of motorist warning devices such as flashing lights or flashing lights with gates. In support of these safety efforts, several projects have been undertaken by the U.S. Department of Transportation (DOT) to assist states and railroads in determining effective use of Federal funds for rail-highway crossing safety improvement. One of these projects has developed the DOT Rail-Highway Crossing Resource Allocation Procedure to assist state and railroad program managers in identifying candidate crossings for improvement. This procedure, referred to hereafter as the DOT Procedure, recommends crossing safety improvements that yield the greatest accident reduction benefits based on consideration of predicted accidents and casualties at crossings, the cost and effectiveness of warning device options, and the budget limit.

Two analytical methods have been developed as part of the DOT Procedure. Their development followed completion of a joint U.S. DOT-AAR (Association of American Railroads) National Rail-Highway Crossing Inventory (hereafter referred to as the Inventory), which numbered and collected inventory information for all public and private crossings in the United States^{1*}. The first analytical method included in the DOT Procedure is the DOT Accident and Severity Prediction Formula, which computes the

*References begin on page 84.

expected number of accidents and casualties at crossings based on information available in the Inventory and crossing accident data files. The second analytical method is a resource allocation model designed to select candidate crossings for improvement on a cost-effective basis and recommend the type of warning device to be installed. This guide provides complete information on how to use these two analytical methods.

This third edition differs from the second edition² in two principal ways: the accident and severity prediction formulas have been recalibrated with recent accident experience and the computer programs have been expanded and rewritten in the SAS programming language. Although the new formulas are slightly better than the old, the old formulas are still valid and quite useable. Other refinements of the DOT Procedure of smaller magnitude have been included. A summary report on the DOT Procedure is available which should complement the material contained in the present report³.

1.3 ORGANIZATION OF GUIDE

Chapter 2 provides a technical overview of the DOT Procedure and its two major elements, the DOT accident and severity prediction formulas and the resource allocation model.

Chapter 3 describes the purpose, development and characteristics of the DOT accident and casualty prediction formulas.

Chapter 4 describes the resource allocation model and its data requirements.

Chapter 5 discusses procedures for use of the DOT Procedure. A sample application is provided as a means of demonstrating its use for different situations.