Preface

The transportation system is often referred to as the nation’s “lifeblood circulation system.” Our complex system of roads and highways, railroads, airports and airlines, waterways, and urban transit systems provides for the movement of people and goods within and between our densest urban cities and the most remote outposts of the nation. Without the ability to travel and to transport goods, society must be structured around small self-sufficient communities, each of which produces food and material for all of its needs locally, and disposes of its wastes in a similar manner. The benefits of economic specialization and mass production are only possible where transportation exists to move needed materials of production to centralized locations, and finished products to widely dispersed consumers.

Traffic engineering deals with one critical element of the transportation system: streets and highways, and their use by vehicles. This vast national system provides mobility and access for individuals in private autos, goods in trucks of various sizes and forms, public transport in buses, bicycles, and pedestrians.

Because the transportation system is such a critical part of our public infrastructure, the traffic engineer is involved in a wide range of issues, often in a very public setting, and must bring a wide range of skills to the table to be effective. Traffic engineers must have an appreciation for and understanding of planning, design, management, construction, operation, control, and system optimization. All of these functions involve traffic engineers at some level.


The text is organized in five major functional parts:

- Part 1- Traffic Components and Characteristics
- Part 2 – Traffic Studies and Programs
This text can be used for an undergraduate survey course, or for more detailed graduate courses. At Polytechnic Institute of New York University, it is used for two undergraduate courses and a series of three graduate courses.

As in previous editions, the text contains many sample problems and illustrations that can be used in conjunction with course material. A solutions manual is available. The authors hope that practicing professionals and students find this text useful and informative, and they invite comments and/or criticisms that will help them continue to improve the material.

**What’s New in This Edition**

This edition of the textbook adds a significant amount of material, including, but not limited to:

1. New homework problems for most chapters.
4. Substantial material from forthcoming new editions of the Highway Capacity Manual (2010) and Manual of Uniform Traffic Control Devices (2010) obtained from research documents, draft materials, and other source documents has been included. Since some of this material has not yet been officially adopted, it provides a preview, but not final information on these standard documents.
5. New material on actuated signal systems and timing has been added.
6. New material on coordination of signal systems has been added.
7. Reference links to important web-sites have been added, as has demonstration solutions using current software packages.