

## FOREWORD

This publication is an update and expansion of Transportation Research Board Special Report 165, "Traffic Flow Theory," published in 1975. This updating was undertaken on recommendation of the Transportation Research Board's Committee A3A11 on Traffic Flow Theory and Characteristics. The Federal Highway Administration (FHWA) funded a project to develop this report via an Interagency Agreement with the Department of Energy's Oak Ridge National Laboratory (ORNL). The project was carried out by ORNL under supervision of an Advisory Committee that, in addition to the three co-editors, included the following prominent individuals:

Richard Cunard, *TRB Liaison Representative*  
Dr. Henry Lieu, *Federal Highway Administration*  
Dr. Hani Mahmassani, *University of Texas at Austin*

While the general philosophy and organization of the previous two reports have been retained, the text has been completely rewritten and two new chapters have been added. The primary reasons for doing such a major revision were to bring the material up-to-date; to include new developments in traffic flow theory (e.g., network models); to ensure consistency among chapters and topics; and to emphasize the applications or practical aspects of the theory. There are completely new chapters on human factors (Chapter 3) and network traffic models (Chapter 5).

To ensure the highest degree of reliability, accuracy, and quality in the content of this report, the collaboration of a large number of experts was enlisted, and this report presents their cooperative efforts. We believe that a serious effort has been made by the contributing authors in this report to present theory and information that will have lasting value. Our appreciation is extended to the many authors for their commendable efforts in writing this update, willingly sharing their valuable time, knowledge, and their cooperative efforts throughout the project.

We would also like to acknowledge the time spent by the members of the Advisory Committee in providing guidance and direction on the style of the report and for their reviews of the many drafts of the report.

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We believe that this present publication meets its objective of synthesizing and reporting, in a single document, the present state of knowledge or lack thereof in traffic flow theory. It is sincerely hoped that this report will be useful to the graduate students, researchers and practitioners, and others in the transportation profession.

Editors: Dr. Nathan Gartner  
*University of Massachusetts - Lowell*

Dr. Carroll J. Messer  
*Texas A&M University*

Dr. Ajay K. Rathi  
*Oak Ridge National Laboratory*  
Project Leader.