Evaluation and Prevention of Water Damage to Asphalt Pavement Materials

Byron E. Ruth, editor

ASTM STP 899
EVALUATION AND PREVENTION OF WATER DAMAGE TO ASPHALT PAVEMENT MATERIALS

A symposium sponsored by
ASTM Committee D-4 on
Road and Paving Materials
Williamsburg, VA, 12 Dec. 1984

ASTM SPECIAL TECHNICAL PUBLICATION 899
Byron E. Ruth, University of Florida,
editor

ASTM Publication Code Number (PCN)
04-899000-08

1916 Race Street, Philadelphia, PA 19103
Foreword

The symposium on Water Damage of Asphalt Pavements: Its Effect and Prevention was presented at Williamsburg, VA, on 12 Dec. 1984. The symposium was sponsored by ASTM Committee D-4 on Road and Paving Materials. Byron E. Ruth was chairman of the symposium and is editor of this publication.
Related
ASTM Publications

Pavement Maintenance and Rehabilitation, STP 881 (1985), 04-881000-08
Placement and Compaction of Asphalt Mixtures, STP 829 (1984), 04-829000-08
Properties of Flexible Pavement Materials, STP 807 (1983), 04-807000-08
Pavement Surface Characteristics and Materials, STP 763 (1982), 04-763000-47
Asphalt Pavement Construction: New Materials and Techniques, STP 724 (1981), 04-724000-08
Quality Assurance in Pavement Construction, STP 709 (1980), 04-709000-08
A Note of Appreciation to Reviewers

The quality of the papers that appear in this publication reflects not only the obvious efforts of the authors but also the unheralded, though essential, work of the reviewers. On behalf of ASTM we acknowledge with appreciation their dedication to high professional standards and their sacrifice of time and effort.

ASTM Committee on Publications
ASTM Editorial Staff

Susan L. Gebremedhin
Janet R. Schroeder
Kathleen A. Greene
William T. Benzing
Contents

Overview 1

METHODS FOR IDENTIFICATION AND EVALUATION OF STRIPPING IN HIGHWAY PAVEMENT SYSTEMS

A Statewide Program to Identify and Prevent Stripping Damage — HERBERT W. BUSHING, GREGG C. CORLEY, JAMES L. BURATI, JR., SERJI N. AMIRKHANIAN, AND JERRY M. ALEWINE 7

Evaluation of Stripping Problems in Oregon — HOSSEIN TAKALLOU, R. GARY HICKS, AND JAMES E. WILSON 22

LABORATORY EVALUATION OF THE EFFECTS OF MOISTURE, ANTISTRIPPING, ADDITIVES, AND ENVIRONMENTAL CONDITIONING

The Effect of Moisture on the Performance of Asphalt Mixtures — OK-KEE KIM, CHRIS A. BELL, AND R. G. HICKS 51

Changes in Asphalt Concrete Durability Resulting from Exposure to Multiple Cycles of Freezing and Thawing — DENNIS W. GILMORE, JAMES B. DARLAND, JR., LARRY M. GIRDLER, LEWELL W. WILSON, AND JAMES A. SCHEROCKMAN 73

The Use of Water Immersion Tests in the Evaluation of the Effects of Water on Cold-Recycled Asphalt Mixtures — MANG TIA AND LEONARD E. WOOD 89

A Laboratory Study of the Effectiveness of Various Admixtures on the Attenuation of Moisture Damage Upon Various Foamed Asphalt Mixtures — HUMBERTO CASTEDO, CHRISTINE C. BEAUDOIN, LEONARD E. WOOD, AND A. G. ALTSCHEFFL 104

RECOMMENDATIONS FOR THE EVALUATION AND USE OF LIME ADDITIVES

Prevention of Water Damage in Asphalt Mixtures — THOMAS W. KENNEDY 119

Maximizing the Beneficial Effects of Lime in Asphalt Paving Mixtures — JOE W. BUTTON 134

Index 147