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Mentors: Donald Capelle, Walter Kraft, Joseph McDermott, David Roper, Edwin Rowe and Gary Trietsch

16. Abstract

This document is the culmination of the third offering of an innovative transportation engineering graduate course at Texas A&M University entitled, "Advanced Surface Transportation Systems" (previously titled "Advanced Traffic Management Systems"). The third offering of the course was presented during the summer 1993 term. As part of the course, a Practitioner-In-Residence program was initiated as a means of providing the students with unique learning experiences. Six top-level managers/practitioners from city and state transportation departments and from transportation consulting firms were invited to Texas A&M University to present a 2-day Symposium on Advanced Surface Transportation Systems at the beginning of the summer term. Immediately following the Symposium, the students enrolled in the course participated in a Workshop with the transportation managers/practitioners and course instructor. Based on mutual interests, each student was assigned to one of the managers/practitioners who served as a mentor (along with the course instructor) to the student for the remainder of the summer term. Each student worked with his/her mentor and course instructor to identify a topic area and objectives for a term paper. In addition to discussions with the course instructor, the students (communicating via telephone, fax and mail) worked directly with the mentors throughout the term while preparing their term papers. Constructive comments were provided the students on their draft papers by the instructor and mentors. The mentors returned to the Texas A&M University campus near the end of the summer term to hear and critique the students' presentations.

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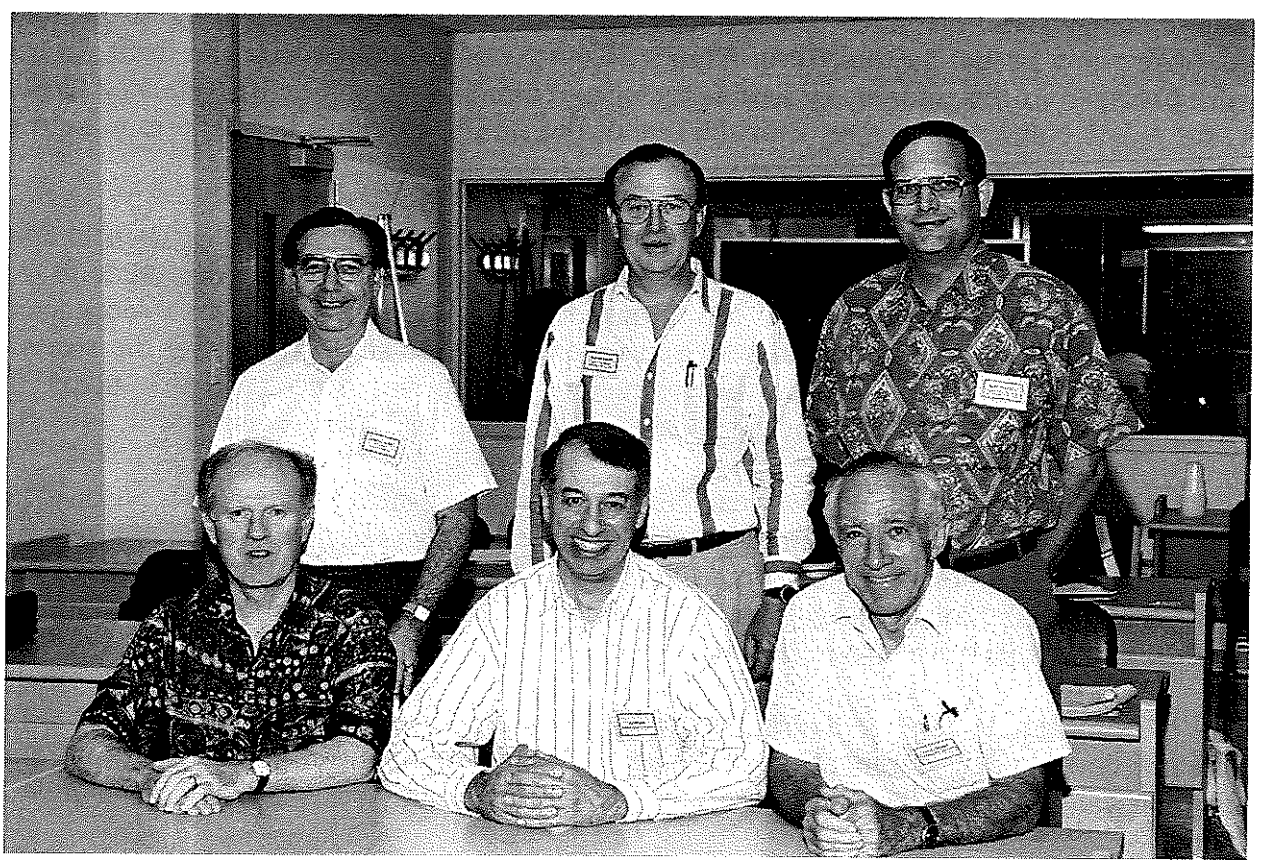
GRADUATE STUDENT PAPERS ON

ADVANCED SURFACE TRANSPORTATION SYSTEMS

AUGUST 1993



Class instructor and mentors (standing, from left) Conrad Dudek, Walter Kraft, Gary Trietsch, (sitting, from left) Joseph McDermott, Edwin Rowe and David Roper. (Not pictured: Donald Capelle.)

PREFACE

This document is the culmination of the third offering of an innovative transportation engineering graduate course at Texas A&M University entitled, "Advanced Surface Transportation Systems." The previous title of the course, "Advanced Traffic Management Systems", was changed to the current title to reflect the broader scope of the IVHS issues addressed. The third offering of the course was presented during the summer 1993 term. As part of the course, a Practitioner-In-Residence program provided the students with unique learning experiences. Six top-level managers/practitioners from city and state transportation departments and from transportation consulting firms were invited to Texas A&M University to present a 2-day Symposium on Advanced Surface Transportation Systems at the beginning of the summer term. Immediately following the Symposium, the students enrolled in the course participated in a Workshop with the transportation managers/practitioners and course instructor. Based on mutual interests, each student was assigned to one of the managers/practitioners who served as a mentor (along with the course instructor) to the student for the remainder of the summer term. Each student worked with his/her mentor and course instructor to identify a topic area and objectives for a term paper. In addition to discussions with the course instructor, the students (communicating via telephone, fax and mail) worked directly with the mentors throughout the term while preparing their term papers. Constructive comments on the draft papers were provided to the students by the instructor and mentors. The mentors returned to the Texas A&M University campus near the end of the summer term to hear and critique the students' presentations.

One important objective of the program was to develop rapport between the students and the transportation managers/practitioners. The opportunity for the students to communicate and interact with top transportation officials, who are recognized transportation engineering experts, was a key element to the students gaining the type of learning experiences intended by the instructor. Therefore, extra care was taken to encourage interaction through the Symposium, Workshop and social events.

Comparable to the previous years, this program was again extremely successful. The students had an excellent opportunity to interact directly for an extended period of time with top-level transportation managers/practitioners who are recognized for their knowledge and significant contributions both nationally and internationally. The course was "fine-tuned" based on the experiences from the two previous years.

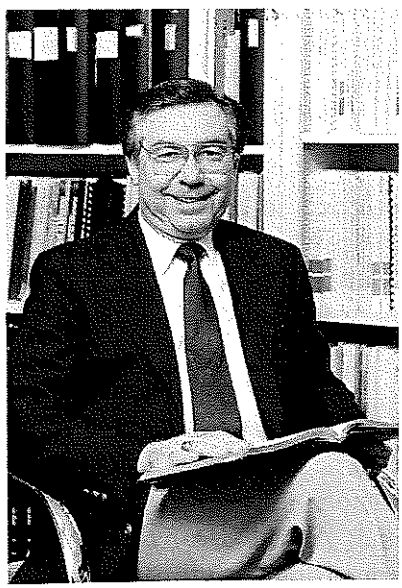
Don Capelle, Walter Kraft, Joseph McDermott, Dave Roper, Ed Rowe and Gary Trietsch devoted considerable time and energy to this program; we are extremely grateful for their valuable contributions to the educational program at Texas A&M University.

The opportunity to bring top-level transportation managers/practitioners to the campus was made possible through financial support provided by the "Advanced Institute" at Texas A&M University which is sponsored by the University Transportation Centers Program of the U.S. Department of Transportation, and from funds received from the Zachry Teaching Program from the College of Engineering at Texas A&M University.

Gratitude and appreciation are expressed to Dr. Carroll Messer, Professor of Civil Engineering, Texas A&M University, who helped me pioneer this innovative graduate course in transportation engineering. Dr. Messer was a co-instructor for the course during the first two years it was offered. Other teaching commitments during the summer of 1993 prevented him from assisting for the third time.

Sandra Mantey, Senior Secretary, Texas Transportation Institute once again coordinated the Symposium and Workshop in a very efficient and professional manner.

Congratulations are extended to the transportation engineering graduate students who participated in this course. Their papers are presented in this Compendium.



Conrad L. Dudek
Professor of Civil Engineering

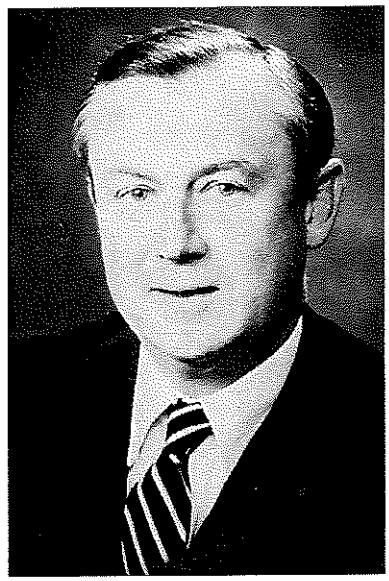
DONALD CAPELLE, Ph.D., P.E.

Dr. Capelle has over thirty-three years of experience in transportation planning, traffic operations, and highway planning and design. He received his undergraduate degree in Civil Engineering from Clemson University in 1953 and his Ph.D. from Texas A&M University in 1966. He is a registered Professional Engineer in California, Texas, Maryland, and Delaware.

Currently, he is a Vice President and Principal Associate with the firm of Parsons Brinckerhoff Quade & Douglas and is located in their Pacific Southwest Regional office in Orange, California. Prior to joining Parsons Brinckerhoff in 1984, he was with PRC Engineering for eight years and with Alan M. Voorhees & Associates for ten years. With these firms, he was involved in various transportation consulting assignments in California, Colorado, Arizona, Texas, Florida, Maryland, and Virginia. Subsequent to his affiliation with Voorhees & Associates, Dr. Capelle served as a traffic research engineer with the Automotive Safety Foundation in Washington, D.C. and as a research engineer with the Texas Transportation Institute in College Station, Texas.

Dr. Capelle is actively involved with the Transportation Research Board (TRB), the Institute of Transportation Engineers, and works frequently with the staffs of many City and State Transportation Departments. He is currently chairman of TRB's Committee on High-Occupancy Vehicle Systems, and in recent years has been actively involved in the development of HOV programs in Southern California, New York, Seattle, New Jersey, and Florida.

WALTER H. KRAFT, D. Eng. Sc., P.E.



Dr. Kraft is an international expert in the planning and design of improvements to reduce congestion and increase roadway capacity, including "SMART" corridors and alternate modes of transportation. He received his Bachelor of Science and Master of Science Degrees in Civil Engineering for Newark College of Engineering in 1962 and 1965, respectively, and his Doctor of Engineering Science in Civil Engineering from the New Jersey Institute of Technology in 1975. He is registered as a professional engineer in 13 states including Texas.

Currently, he is a Partner and Senior Vice President of Edwards and Kelcey, Inc. in New Jersey. Dr. Kraft has been the Principal-in-Charge, Technical Consultant or Project Director of numerous study and design projects. He is also chief of Quality Assurance/Quality Control and is responsible for setting quality standards and ensuring their implementation in all professional services performed by the firm. He has been an Adjunct Professor at the New Jersey Institute of Technology and the Polytechnic Institute of New York, and lectured at Carnegie-Mellon University and St. John's University in Staten Island. He has also lectured at the International Conference on Traffic Engineering and Planning in Beijing, People's Republic of China, and at the Sino-American-British Urban Transport Planning Seminar, Beijing, People's Republic of China.

Dr. Kraft is very active in professional organizations and has received numerous awards. He has held several positions within the International Institute of Transportation Engineers, including International President (1987), Chairman, IVHS Advisory Committee (1992), and Chairman, IVHS Council (1993). He also served as President of the New Jersey Branch of the American Society of Civil Engineers (1970). He has served on several Transportation Research Board Committees and is currently a member of the Freeway Operations Committee. Dr. Kraft is also a member of IVHS-America. Among the many awards and honors he received, includes the ASCE Frank Masters Award (1982), ITE Ivor S. Wisepart Transportation Engineer Award (1986) and the ITE Burton W. Marsh Award (1992).

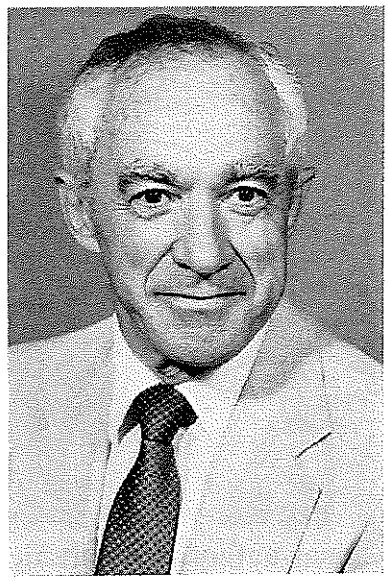
JOSEPH M. McDERMOTT, P.E.

Mr. McDermott, an international expert in freeway corridor transportation management, is Engineer of Traffic in District 1 (Chicago Area) for the Illinois Department of Transportation. He has the responsibility for the traffic engineering functions of the District including programs, studies, access permits, signs, signals, markings, and systems operations, along with four sign shops, the Emergency Traffic Patrol and the Traffic Systems Center. Prior to this appointment, Mr. McDermott was Manager of the Traffic Systems Center where he has worked since 1963. Mr. McDermott received his B.S. from the University of Detroit and M.S. from Northwestern University, both in Civil Engineering.

As manager of the Chicago Area Traffic Systems Center, he was directly responsible for the largest freeway surveillance and control center in the U.S. A registered professional engineer in Illinois and Ohio, Mr. McDermott's affiliations include: member and former chairman of the Transportation Research Board Committee on Freeway Operations, where he served on the TRB Group 3 Council; member and former chairman of the Committee on Traffic Operations for the American Society of Civil Engineers, from which he received the 1980 Frank M. Masters Transportation Engineering Award and the 1981 Arthur M. Wellington Prize; former chairman of the ASCE Urban Transportation Division Executive Committee; former lecturer at the Northwestern University Traffic Institute; and vice chairman of the American Association of State Highway and Transportation Officials Special Committee on Transportation Systems Operations.

The freeway surveillance and control system developed by IDOT was recognized by the National Society of Professional Engineers as one of the ten outstanding engineering achievements in the U.S. in 1971. In 1976, the Traffic Systems Center was one of twenty transportation sites selected for HORIZONS ON DISPLAY, an U.S. Bicentennial tribute to community achievement recognizing 200 examples across the nation that illustrate the "continuing capacity of Americans to find creative approaches to contemporary needs." In 1987, the Institute of Transportation Engineers named the IDOT "Chicago Area Freeway Traffic Management Program" as the recipient of its annual Transportation Achievement Award.

DAVID H. ROPER, P.E.

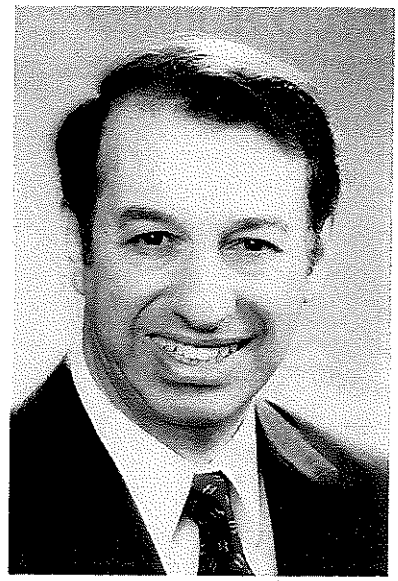


Mr. Roper is an international expert in freeway corridor transportation management and control systems and traffic management during special events. He received his B.S. from the University of Arizona, Tucson, in 1951, and his M.S. from the University of Southern California, Los Angeles, in 1960, both in Civil Engineering.

A leader in the development and implementation of the Los Angeles Freeway Surveillance and Control Project, Mr. Roper had over 40 years' experience with the California Department of Transportation (Caltrans) in transit planning, system operation, transportation and environmental planning, construction, design and route selection activities. He spent two years on special assignment as Executive Director of the Commuter Computer Ridesharing Program and was Director of the Caltrans Olympics Transportation Program. Immediately prior to his retirement in February 1992, Mr. Roper served as Deputy District Director, Operations, California Department of Transportation. He is now a private consultant, and is involved in a variety of Freeway Traffic Management projects in New Jersey, Atlanta, Orlando, Salt Lake City, St. Louis, and in Guangdong Province in South China. He is part of a team recently selected by FHWA to carry out research on Automated Highway Systems. Over the past 27 years, he has taught a variety of transportation engineering and highway design courses at the University of California, Los Angeles, California State University, Fullerton, and California State University, Los Angeles.

Mr. Roper is a member of the Transportation Research Board, Freeway Operations Committee; Professional Engineers in California Government (Past Director); Planning Commission, City of Santa Monica (Chairman, 1973); General Advisory Board, Santa Monica College; the American Public Works Association; and the Institute of Transportation Engineers.

EDWIN ROWE, P.E.



Mr. Rowe is an international authority on traffic signal control systems and the integration of traffic signals to freeway control systems. He received his Bachelors of Engineering from the University of Southern California and Masters of Engineering, Engineering Executive Program, from the University of California, Los Angeles.

Mr. Rowe is a private transportation engineering consultant. He most recently was the General Manager of the City of Los Angeles Department of Transportation where he served for 35 years. The Department had over 2,000 employees and an annual operating budget of $113 million. Mr. Rowe's major achievements include direction of planning and implementation of the Department's Olympic Games Transportation Program, developer and director of the Automated Traffic Surveillance and Control (ATSAC) system in Los Angeles, and director of city participation in the Smart Corridor Project. The ATSAC Program has been selected as a winner for the Innovations in State and Local Government Award, a program sponsored by the Ford Foundation and the Harvard University JFK School of Government.

Mr. Rowe was named City Employee of the Year for 1989, and received the Institute of Transportation Engineer's 1990 Theodore M. Matson Memorial Award for outstanding contributions to the advancement of the science and profession of Traffic Engineering. He was also a finalist in the American Public Works Association's 1991 Top Ten Public Leaders of the Year, and has been elected to the Institute for the Advancement of Engineering College of Fellows.

Mr. Rowe's affiliations include: the Institute of Transportation Engineers; Vice Chairperson of the ITE Council on Intelligent Vehicle-Highway Systems; Transportation Research Board Committees and Task Forces; Board of Directors of the Intelligent Vehicle Highway Society of America; Chairman of FHWA Expert Panel on Operations and Maintenance of Traffic Control Systems; Co-Chairman of Engineering Foundation Conferences on Traffic Management; and the Advisory Board of Commuter Transportation Services, Inc.

GARY K. TRIETSCH, P.E.

Mr. Trietsch is the Director of the Division of Maintenance and Operations at the Texas Department of Transportation where he is leading Texas in the development of IVHS technology. The Division of Maintenance and Operations has statewide responsibilities for highway maintenance and operations, including traffic safety, traffic engineering, traffic management, maintenance, landscaping, departmental buildings, and oversize/overweight vehicle permits. He received his B.S. in Civil Engineering from the University of Texas at Arlington in 1970 and his M.S. in Civil Engineering in 1974.

Mr. Trietsch began his career with the Department in 1967 as a summer employee in the Tarrant County Construction Section in Fort Worth. From 1972 until 1978, he worked in the Fort Worth District Traffic Engineering Section and then worked in various design capacities within the District. Prior to transferring to the Austin headquarters office in 1987, he was the Assistant District Design Engineer.

Mr. Trietsch is the recipient of the 1991 Dewitt C. Greer Award, one of two top awards presented annually by TxDOT for engineering leadership and excellence. His affiliations include: Institute of Transportation Engineers (ITE), Intelligent Vehicle Highway Systems (IVHS) Task Force; American Association of State Highway and Transportation Officials (AASHTO), Standing Committee on Highway Traffic Safety, Highway Subcommittee on Traffic Engineering, Highway Special Committee on Transportation Systems Operations, Highway Subcommittee on Maintenance, Highway Subcommittee on Design--Task Force for Public Facilities Design; Transportation Research Board (TRB)--HOV Systems Committee; and National Association of Governors' Highway Safety Representatives (NAGHSR).

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