PREFACE

As in previous years, the Council has continued to expand its activities and services to its sponsors, participating faculty, and students. During the 1976–77 academic year, the Council participated in 23 activities which involved a wide spectrum of sponsors. The Council has continued its Traffic Safety Program, its research with the Department of Transportation, the U.S. Forest Service, and the United Nations and World Bank. In addition to these continuing activities, several new programs, services, and activities have been initiated during the year.

The Regional Information Center is now operational and provides faculty and students with rapid access to transportation-related information and publications, a service which greatly enhances the educational and research potential at The University of Texas at Austin. In addition, the Council provided national leadership by conducting and co-sponsoring the “Southwest Conference on Coordinating Mobility Programs for the Transportation Disadvantaged” which was held in San Antonio and attracted participants from 22 states and Puerto Rico. The Council also developed a Driver Education Curriculum for senior high school students, developed and presented a short course on the Use of Statistics for Planners and Managers, and conducted a workshop on Human Services Transportation Planning and Management.

These new activities enhance the total reputation of The University of Texas at Austin as an institution serving the needs of the state, the nation, and local governments.

THOMAS W. KENNEDY, Director
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Summary of Organizational Objectives and Accomplishments

FUNCTIONAL MISSION

Since establishment by the Office of the President in May 1972, the Council for Advanced Transportation Studies has served as a multidisciplinary organization to carry out research and educational programs in transportation. The steadily expanding and increasingly diverse spectrum of programs focuses on national, state, and local transportation problems and provides an academic background for the development of professional careers in several fields of transportation. The Council provides a forum for faculty and student participation through close working relationships with the private sector and government agencies having common goals and interests in transportation education and research.
OBJECTIVES

The activities and programs of the Council are of a continuing and diverse nature and are in response to the transportation needs of the state, nation, and local communities. The overall objective of the Council is to provide a coordinated program within The University for Research, Education, Information Service, and Public Service focused on transportation and related problems.

RESEARCH

The Council, in continuing to encourage transportation-related research with The University, fulfills four basic roles. First, it acts to identify new transportation research areas. Second, it seeks out faculty expertise to undertake research. Third, it attempts to find external funding to support faculty research in transportation. Finally, it coordinates on-going research within The University.

EDUCATION

The Council, through its Academic Committee, coordinates the development and teaching of graduate and undergraduate transportation and transportation-related courses at The University of Texas at Austin. "Studies in Transportation," a brochure developed by the Academic Committee, describes degrees, majors, programs, and courses relating to transportation. In addition, the Council conducts short courses, workshops, and conferences on current transportation-related subjects.
INFORMATION SERVICES

The Council is presently developing a Regional Transportation Information System which will provide fast response to informational needs on various aspects of transportation. The system includes a nationwide, computer-accessible information network and a regional transportation library. In addition, a continuous effort is made to disseminate information which is of current interest.

PUBLIC SERVICE

The Council attempts to furnish the expertise of the Council and its associated faculty to the private sector and various public bodies charged with responsibility concerning transportation.

Activities

The Council's activities have continued to grow and expand as shown in Figures 1, 2, and 3. During 1976–77, 23 projects and activities were sponsored by International, Federal, and State agencies and by private sector organizations. These activities totalled approximately $750,000 (Figure 3). In addition, a significant amount of time and services were contributed by The University faculty, staff, and officials from the public and private sector. This year Council programs have involved 42 faculty and professional staff, 27 graduate students, 12 undergraduate students, and 7 full-time support staff. (See figures 1 on page 6, 2 on page 7, and 3 on page 8.)

RESEARCH

The Influence on the Rural Environment of Interurban Transportation Systems

Co-Principal Investigators:  
C. Michael Walton, Civil Engineering  
Richard Dodge, Architecture and Planning  
John F. Betak, Council for Advanced Transportation Studies

Sponsor:  U.S. Department of Transportation

This project investigated various aspects of the social, economic, and physical impact of interurban transportation on small communities.

A series of research reports were produced on such areas of impact as changes in land values, manufacturing, employment, and perceived utility of alternative transportation systems. The final phase has been primarily concerned with the development of two sets of manuals, one for use by professional planners and one for use by local officials and citizens.
Figure: 1
PROJECT FUNDS 1972-77: ALLOCATION AND GROWTH

Federal
Texas State Agencies
Other: Private Sector & Other States
The University of Texas at Austin

THOUSANDS OF DOLLARS

Figure: 2

PROJECTS BY ACADEMIC YEAR

<table>
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Council for Advanced Transportation Studies May 26, 1972

The University of Texas at Austin: A Campus Transportation Survey (Apr 73-Sep 73)

Transportation to Fulfill Human Needs (Jun 73-present)

Vehicle Noise Studies (Jun 73-Dec 74)

Dissemination of Information to Increase Use of Austin Mass Transit (Jun 73-Sep 73)

Pavement Management System for Low Cost (Forest Service) Roads (Jun 73-present)

CATS Membership in Governor’s Interagency Transportation Council (Dec 73-Dec 74)

Analysis of Effectiveness of Transportation Alternatives (Jan 74-Dec 74)

Transportation Services for the Mentally Retarded (May 74-Dec 74)

Energy Crisis and Its Effect on Texas Highway Accident Experience (May 74-Jan 75)

Fourth Ciclo de Conferencias, Ingenieria del Transporte (Jul 74, Aug 75, Aug 76, Aug 77)

Where the Buses Are (Sep 74-Jun 75)

A Plausible Scenario for the Development of a Comprehensive Transportation System Using the Austin-Travis County Area as an Illustrative Case (Dec 74-Jan 75)

Gasoline Retailers’ Right to Survival (Dec 74-Jan 75)

A Systems Analysis Procedure for Estimating the Capacity of an Airport (May 75-present)

Brazil Research on the Interrelationships Between Costs of Highway Construction, Maintenance and Utilization (Jun 75-present)

Ride Quality Studies on Ground-Based Transportation Systems (Jun 75-Jun 76)

Traffic Safety Management Program (Sep 75-Aug 76)

Periodic Motor Vehicle Inspection (Oct 75-Dec 75)

Data Information Acquisition and Retention (Jun 76-present)

Foundations of Traffic Safety Management (Jun 76-present)

Evaluation Methods Development (Jun 76-present)

Human Factors in Accident Causation (Jun 76-present)

Accident Reconstruction (Jun 76-present)

Carbon Monoxide Problem Definition (Jun 76-present)

Psychological Analysis of the Degree of Safety in the Traffic Environment (Jun 76-present)

Traffic Safety Computer Services (Jun 76-present)

The Highway and Its Environment/Ninth Annual Awards (Jul 76-Sep 76)

Traffic Safety Standards: Evaluation and Development (Aug 76-Sep 76)

Texas Transportation Survey (Oct 76-Dec 76)

Southwest Conference on Coordinating Mobility Programs for the Transportation Disadvantaged (Oct 76-May 77)

Alcohol and Traffic Safety: Curriculum and Material Development (Mar 77-present)

Human Service Transportation Planning and Management (Mar 77-present)

Seminar on Commuter Forecasting (Apr 77)

Introduction to Statistics and Research Design for Traffic Safety and Law Enforcement Officials (Apr 77-present)
### Projects and Activities Operating During 1976–77

<table>
<thead>
<tr>
<th>Project</th>
<th>Sponsor</th>
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<tbody>
<tr>
<td>1. Transportation to Fulfill Human Needs</td>
<td>U.S. Department of Transportation</td>
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<tr>
<td>2. Pavement Management System for Lost Cost (Forest Service) Roads</td>
<td>U.S. Forest Service</td>
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<tr>
<td>3. A Systems Analysis Procedure for Estimating the Capacity of an Airport</td>
<td>U.S. Department of Transportation</td>
</tr>
<tr>
<td>5. Data Information Acquisition and Retention</td>
<td>Government of Brazil</td>
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<tr>
<td>7. Evaluation Methods Development</td>
<td>Texas Research and Development Foundation</td>
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<tr>
<td>8. Human Factors in Accident Causation</td>
<td>Texas State Department of Highways and Public Transportation (TSDHPT)</td>
</tr>
<tr>
<td>9. Accident Reconstruction</td>
<td>TOTS/TSDHPT</td>
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<tr>
<td>10. Carbon Monoxide Problem Definition</td>
<td>TOTS/TSDHPT</td>
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<tr>
<td>11. Psychological Analysis of Degree of Safety in the Traffic Environment</td>
<td>TOTS/TSDHPT</td>
</tr>
<tr>
<td>12. Traffic Safety Computer Services</td>
<td>TOTS/TSDHPT</td>
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<tr>
<td>14. The Highway and Its Environment/Ninth Annual Awards</td>
<td>Federal Highway Administration</td>
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<tr>
<td>15. Contemporary Transportation Issues</td>
<td>U.S. Department of Transportation</td>
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<tr>
<td>16. Topics in Transportation</td>
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<tr>
<td>17. Texas Transportation Survey</td>
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<td>18. Southwest Conference on Coordinating Mobility Programs for the Transportation Disadvantaged</td>
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<td>Texas Department of Community Affairs</td>
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<td>Council for Advanced Transportation Studies</td>
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<td>National Council for the Transportation Disadvantaged</td>
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<tr>
<td>19. Fourth Ciclo de Conferencias, Ingenieria del Transporte</td>
<td>State of Puebla, Mexico</td>
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<tr>
<td>20. Alcohol and Traffic Safety: Curriculum and Material Development</td>
<td>Texas Education Agency</td>
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<td>21. Human Service Transportation Planning and Management</td>
<td>Coordinating Board, Texas College and University System</td>
</tr>
<tr>
<td>22. Seminar on Commuter Forecasting</td>
<td>Federal Aviation Administration</td>
</tr>
<tr>
<td>23. Introduction to Statistics and Research Design for Traffic Safety and Law Enforcement Officials</td>
<td>Texas Department of Public Safety</td>
</tr>
</tbody>
</table>
Human Response in the Evaluation of Modal Choice Decision

Co-Principal Investigators:  Mark I. Alpert, Marketing Administration
                           Linda L. Golden, Marketing Administration
                           John F. Betak, Council for Advanced Transportation Studies
                           C. Shane Davies, Geography

Sponsor:  U.S. Department of Transportation

Based on an evaluation of existing modes and using key determinant procedures, the work included under this topic has proceeded as follows:

1. Data have been collected to test the validity of whether changes in attributes or transportation modes and promotional messages affect rider and voter responses. 2. A longitudinal survey of changes in attitude toward determinant attributes, transit funding, etc., has been completed. 3. In addition, surveys were administered to “potential switchers” to mass transit to determine trade-offs in determinant attributes for modal choice decision.

Pavement Management System for Low Cost Forest Service Roads

Co-Principal Investigators:  W. Ronald Hudson, Civil Engineering
                           B. Frank McCullough, Civil Engineering
                           Freddy L. Roberts, Civil Engineering

Sponsor:  U.S. Forest Service

The first year of this project was devoted to the formulation of a preliminary conceptual system. Through the synthesis of information obtained during a comprehensive literature review and contact between Forest Service personnel and the project staff, the preliminary conceptual system was developed. Using the results of the Phase I conceptual study and a pre-existing program, an initial computerized working pavement design and management model was developed during Phase II of the project. Phase III involves the preparation of training materials and implementation of the design and management system on a trial basis in selected Forest Service Management areas. A sensitivity analysis that includes all input variables contained in the Program User’s Manual is also being conducted during the two-year third phase.

A Systems Analysis Procedure for Estimating the Capacity of an Airport

Principal Investigator:  B. Frank McCullough, Civil Engineering

Sponsor:  U.S. Department of Transportation

The initial step of identifying the components and boundaries of an airport system has been completed. Existing definitions of airport capacity have been reviewed and a definition which applies to the airport system as a whole, as well as to the individual components, has been developed. Giving special consideration to passenger behavior, the modeling framework for analyzing overall airport capacity was developed. During the coming year, study will concentrate on refinements of individual component models, a sensitivity analysis of the component models, and a validation of a system capacity model. In conjunction with the modeling concept, selected models were developed or adapted for different components of the airport system. Data collected and analysis procedures have been examined and a preliminary step for implementing the overall capacity model has been considered.
Brazil Research on the Interrelationships Between Costs of Highway Construction, Maintenance, and Utilization

Principal Investigator: W. Ronald Hudson, Civil Engineering

Sponsors: International Bank for Reconstruction and Development
          Government of Brazil
          United Nations Development Program
          Texas Research and Development Foundation

This project is part of a continuing large research program by the World Bank, the United Nations, and several countries to develop improved highway project planning models for low volume roads in developing countries, taking into account the costs of construction, maintenance, and utilization. The program involves the collection and analysis of empirical data on road design, road deterioration, road maintenance cost and road user consequences. The results of this three-year program will be used to assist administrators in Brazil and in developing countries throughout the world in making decisions toward optimizing investments. Previous components of the program have included: (1) the development of preliminary models, (2) the collection of empirical data and modification of models developed during a similar study in Kenya, and (3) a study phase completed in India.

Psychological Analysis of Degree of Safety in Traffic Environmental Design

Project Manager: Charles J. Holahan, Psychology

Sponsors: Texas Office of Traffic Safety
          Texas State Department of Highways and Public Transportation

This project involves an effort to define, operationalize, and measure quantitatively visual distractibility in the traffic environment. Efforts to date, point very strongly to a need for further inquiry in two areas: (1) a specific analysis of visual distractibility in the traffic environment, and (2) the development of an overall model capable of predicting the level of distractibility in particular traffic environment settings.
Human Factors in Accident Causation

Project Managers: Martha S. Williams, Social Work
Robert K. Young, Psychology

Sponsors: Texas Office of Traffic Safety
Texas State Department of Highways and Public Transportation

The main tasks to be accomplished under this project are as follows:
1. Develop a method for reliably acquiring new literature on psychological/sociological factors in accidents and compilation of various methods of data collection;
2. Develop a permanent library of said literature to be available through the Council for Advanced Transportation Studies;
3. Make recommendations concerning any significant findings and the suggested areas for research.

Summaries of this work will be produced in separate booklets by December 1977.

Accident Reconstruction

Project Managers: Walter S. Reed, Mechanical Engineering
Craig C. Smith, Mechanical Engineering

Sponsors: Texas Office of Traffic Safety
Texas State Department of Highway and Public Transportation

The long-range goal of this project is to develop accident simulation techniques to aid policy-makers, designers, and accident investigators in the area of traffic safety. The initiation of a bibliography of significant literature for the assessment of automobile accident causation factors and the evaluation of the use of dynamic modeling and computer simulation of accidents as a method of collecting data about accident causes has been partially completed.

Carbon Monoxide Problem Definition

Project Manager: Freddy L. Roberts, Civil Engineering

Sponsors: Texas Office of Traffic Safety
Texas State Department of Highways and Public Transportation

The major emphasis of study under this project includes a definition of the extent of the carbon monoxide problem in the population of passenger vehicles in the Austin, Texas, area. To simulate this population, representative vehicles were selected from the University of Texas community and tested for generation of carbon monoxide in the passenger compartment during normal operation of the vehicle. Also, counter-measures that may be used by the State to alert the public to identify carbon monoxide risks and methods for avoiding them have been proposed to the Office of Traffic Safety personnel.

Evaluation Methods Development

Project Manager: Byron Hinderer, Council for Advanced Transportation Studies

Sponsors: Texas Office of Traffic Safety
Texas State Department of Highways and Public Transportation

This project has as its objective the development of practical methods for evaluating the effectiveness of various traffic safety countermeasures which can be employed by working managers at the state and local levels.
EDUCATION

Contemporary Transportation Issues

Instructors: W. Ronald Hudson, Civil Engineering, Fall 1976
C. Michael Walton, Civil Engineering, Spring 1977

Sponsors: Department of Civil Engineering
Council for Advanced Transportation Studies

The purpose of the transportation seminar (CE 391T and UC 388) conducted each semester is to provide a forum for presenting current issues of major significance facing the transportation sectors of our society and environment. The seminar is structured so as to provide the students with exposure to the thinking of individuals who are engaged in various facets of the transportation profession. The intent is to broaden the student’s knowledge and awareness of current issues.

Topics in Transportation

Instructor: David A. Sands, Council for Advanced Transportation Studies, Fall 1976, Spring 1977

Sponsors: Division of General and Comparative Studies
Council for Advanced Transportation Studies

This course (TNS 320) is intended to give a broad overview of the field of transportation. The course is designed to cover transportation modes and alternatives, the current state-of-the-art, and concepts of planning and controlling transportation development from a multidisciplinary standpoint. The seminar gives the student an overview of transportation policy and planning on a state and national level. Students obtain valuable practical experience in solving transportation-related problems through participation in group projects.

Foundations of Traffic Safety Management

Instructors: John F. Betak, Council for Advanced Transportation
Barbara J. Chance, Sociology
Gary Hales, Educational Psychology
Linda MacNeilage, Counseling—Psychological Services Center
Reuben McDaniel, Jr., Management
Freddy L. Roberts, Civil Engineering
David A. Sands, Council for Advanced Transportation Studies
Craig C. Smith, Mechanical Engineering
Frank Vasquez, Marketing
C. Michael Walton, Civil Engineering

Dr. Barbara J. Chance, Sociology
During 1975-76 a six-week course (BA 379) entitled "Foundations of Traffic Safety Management," was developed and presented twice. Thirty-nine local Traffic Safety Coordinators and field staff from the Governor's Office of Traffic Safety completed the course, which combined two intensive weeks of resident study with an interim period in which a field assignment was carried out in each participant's regular work setting. This year the Foundations Course was presented for the third time, using the recommendations derived from the evaluation of the first course as a basis for an improved curriculum. As an outgrowth of the Foundations Course, student reference material was prepared which, as the material is refined, will be developed for use as a handbook for Traffic Safety Field Personnel.

**Human Service Transportation Planning and Management**

Project Director: C. Michael Walton, Civil Engineering

Project Manager: John W. Huddleston, Council for Advanced Transportation Studies

Sponsor: Coordinating Board, Texas College and University System

This five-day short-course is designed to promote understanding and cooperation through the review of basic principles of transportation planning and management and the development of particular skills in planning, accounting, record keeping, and evaluation.

The first offering of this course was attended by fifty transportation program administrators, planners, and providers. Future offerings of the course will take place on a periodic basis.
**Introduction to Statistics and Research Design for Traffic Safety and Law Enforcement Officials**

Instructor: Freddy L. Roberts, Civil Engineering

Sponsors: Texas Department of Public Safety  
Texas Office of Traffic Safety  
Texas State Department of Highways and Public Transportation

This short-course was conducted in cooperation with the Department of Public Safety. The 27 participants undertook 12 days of instruction in statistics and research design for traffic safety and law enforcement personnel.

**Alcohol and Traffic Safety: Curriculum and Material Development**

Project Director: David A. Sands, Council for Advanced Transportation Studies

Sponsor: Texas Education Agency

Under this project a four hour prototype curriculum was developed treating implications of, and means to avoid, driving (or riding with a driver) impaired by alcohol. The curriculum will be included in the State Driver Education Program by the Texas Education Agency. Included in the initial phase of this project, the Council will conduct a workshop to disseminate the new curriculum to forty coordinators from the twenty Regional Education Service Centers.

**Fourth Ciclo de Conferencias, Ingenieria del Transporte**

Program Coordinators: B. Frank McCullough, Civil Engineering  
Thomas W. Kennedy, Civil Engineering; Council for Advanced Transportation Studies

Sponsor: State of Puebla, Mexico

In August 1977, Professors B. Frank McCullough, Thomas W. Kennedy and C. Michael Walton conducted sessions on modern U.S. transportation methods for more than 100 civil engineers from several Mexican states, federal transportation agencies in Mexico, and the National University of Mexico-Institute of Engineering.

**INFORMATION SERVICES**

**Data and Information Acquisition and Retention**

Project Director: John F. Betak, Council for Advanced Transportation Studies

Sponsors: Texas Office of Traffic Safety  
Texas State Department of Highways and Public Transportation

This system will provide fast response to the informational needs of persons concerned with transportation and traffic safety planning, operations, and technology through a nationwide, computer-accessible information network and regional transportation library.
Traffic Safety Computer Services

Project Manager: John F. Betak, Council for Advanced Transportation Studies

Sponsors: Texas Office of Traffic Safety
         Texas State Department of Highways and Public Transportation

This contract represented a continuation and expansion of support services supplied to the Office of Traffic Safety by the Council utilizing The University of Texas at Austin Computation Center’s processing capabilities. The expansion represents additional information and data handling services which will complement the Council for Advanced Transportation Studies’ developing traffic safety information and data acquisition efforts.

TRISNET Document Delivery Center

Project Director: John F. Betak, Council for Advanced Transportation Studies

Sponsors: U.S. Department of Transportation
         Council for Advanced Transportation Studies

TRIS-ON-LINE is a computerized information-retrieval system of selected references to technical literature and ongoing research. Document Delivery Services are considered to be libraries or document centers that organize and store full-text documents and that provide access to their holdings on a purchase or loan basis.

At present, there are six document delivery services: the U.S. Department of Transportation Library, the Technical Information Center at the Transportation Systems Center, the Institute of Transportation Studies Library at the University of California at Berkeley, the DOT Technical Documentation Center, the Northwestern University Transportation Center Library, and the Council for Advanced Transportation Studies Regional Transportation Information System and Clearinghouse.

Dissemination

Project Manager: Stephen T. Martin, Council for Advanced Transportation Studies

Sponsor: Council for Advanced Transportation Studies

The dissemination system is designed to maintain an extensive mailing list, which will be used to keep interested groups informed of the Council’s activities. In addition, brochures, films, and publication catalogues are being developed for public access to the information.

PUBLIC SERVICE

Southwest Conference on Coordinating Mobility for the Transportation Disadvantaged

Project Director: Thomas W. Kennedy, Civil Engineering; Council for Advanced Transportation Studies

Project Manager: John W. Huddleston, Council for Advanced Transportation Studies

Sponsors: Texas Department of Community Affairs
         Texas Department of Public Welfare
         Council for Advanced Transportation Studies
         National Council on the Transportation Disadvantaged
This conference was conducted in San Antonio and assembled experts in the field of transportation planning at the Federal, Regional, State and local level to discuss solutions to providing coordinated mobility programs for the transportation disadvantaged.

**The Highway and Its Environment/ Ninth Annual Awards**

Project Director: John F. Betak, Council for Advanced Transportation Studies

Sponsors: Federal Highway Administration
          U.S. Department of Transportation

This contest was designed to give public recognition to agencies, organizations, and business enterprises which have taken action to protect, preserve, or enhance the highway environment.

**Seminar on Commuter Forecasting**

Project Director: C. Michael Walton, Civil Engineering

Sponsor: Federal Aviation Administration

Thirty-nine participants from federal and state regulatory agencies were brought together with FAA air transport providers to discuss a new forecasting model designed by the Federal Aeronautics Administration to predict future commuter airlines' passenger and facility utilization.

**Traffic Safety Standards: Evaluation and Development**

Project Manager: David A. Sands, Council for Advanced Transportation Studies

Sponsors: Texas Office of Traffic Safety
          Texas State Department of Highways and Public Transportation

This three day training session was developed to review, evaluate, and recommend modifications of selected National Highway Traffic Safety Administration Traffic Safety Standards.
Guest Lecturers and Program Visitors

To provide a transportation forum for the students, faculty, and the community, the Council sponsors speakers from many facets of transportation. In addition to faculty, the seminars host national and international speakers from government, industry, and other universities. The following is a list of guest lecturers who participated in the graduate and undergraduate seminars.

GRADUATE TRANSPORTATION SEMINAR LECTURERS

Dr. Sohan Agarwal  
Engineers India Limited  
Bombay, India

“Design and Installation of Pile Foundation for Offshore Bombay High-Oil Production Project”

Mr. Russ L. Kaesehagen  
Rural Planning Engineer  
Main Roads Department  
Sidney, Australia

“Planning and Construction of Roads in Rural Australia”

Mr. Robert P. Neuschel  
Director and Senior Partner  
McKinsey and Company, Inc.  
Chicago, Illinois

“An Overview of the U.S. Transportation System”

Mr. Phil Smith and  
Mr. Frank Carmichael  
Consulting Engineers  
Austin, Texas

“A Study of Transportation-Induced Air Pollution”

Mr. Phillip Wilson  
State Planning Engineer  
Texas State Department of Highways and Public Transportation  
Austin, Texas

“Planning for Highways and Public Transportation”
Mr. John F. Nixon  
Research Engineer  
Texas State Department of Highways and Public Transportation  
Austin, Texas

Mr. Bill Brown  
Science Policy Analyst  
U.S. Department of Transportation  
Washington, D.C.

Dr. Robert Cotgrove  
Department of Geography  
University of Tasmania  
Hobart, Tasmania, Australia

Mr. Max Ulrich  
Director  
Austin Transportation Office

Mr. Thomas Golob  
Senior Research Economist  
General Motors Research Laboratories  
Warren, Michigan

Mr. Glen Ford  
Regional Representative  
Urban Mass Transportation Administration  
U.S. Department of Transportation  
Fort Worth, Texas

Mr. John Roark  
Director of Transportation  
North Central Texas Council of Governments  
Arlington, Texas

Dr. Robert Herman  
Head, Traffic Science Department  
General Motors Research Laboratories  
Warren, Michigan

Mr. Barry Goodman  
Transit Administrator  
Public Transportation Division  
Houston, Texas

Mr. Herbert S. Levinson  
Senior Vice President  
Wilbur Smith & Associates  
New Haven, Connecticut

Mr. Jim Horrell  
Project Manager for Coal Slurry  
Houston Natural Gas, Houston, Texas  
and Mr. Charles Ford  
Special Council  
Texas Railroad Association  
Austin, Texas

“Research Program Management”

“Federal Transportation Policy Issues”

“Impacts of a Major Transportation Disruption on an Urban Structure: A Case in Hobart, Tasmania”

“Long-Range Regional Transportation Planning and Programming Issues for Austin”

“Exploring Uses of Attitudinal Data in Travel Demand Analyses”

“Federalism and Urban Mass Transportation”

“Financing of Transportation Systems: The Future of Regional Transportation Authorities in Texas”

“Cars, Drivers and Traffic”

“Public Transportation in Major Areas”

“Bus Transit in Urban Areas”

“Innovations in Transportation Coal Slurry Pipelines Issues”
UNDERGRADUATE TRANSPORTATION SEMINAR LECTURERS

Mr. Joel Wooldridge  
Director  
Capital Area Planning Council  
Austin, Texas

Mr. Joe Gieselman  
Steering Committee  
Austin Transportation Studies

Mr. Don Harley  
Governor's Office of Budget and Planning  
Austin, Texas

Mr. Merrill Goodwyn  
Aviation Planner  
Texas Aeronautics Commission  
Austin, Texas

Mr. Don Dial  
Public Transportation Planning Engineer  
Texas State Department of Highways and Public Transportation  
Austin, Texas

Mr. Joe Ferran  
Industrial Development Specialist  
Texas Industrial Commission  
Austin, Texas

"Regional Development and Transportation"  
"Comprehensive Planning"

"The Future Transportation System of the Austin Urbanized Area"  
"Metropolitan Transportation Modeling and Planning"

"Interagency Transportation Coordination at the State Level"

"The Role of Aviation: Present and Future"  
"Present Status and Future Projection of Modal Alternatives: Air"

"Statewide Transportation Planning"  
"Present Status and Future Projection of Modal Alternatives: Highways and Public Transportation"

"Present Status and Future Projection of Modal Alternatives: Rail, Water, Pipelines"

Program Visitors

In addition to speakers, the Council has had a number of visitors from universities, industry, and government, both from this country and foreign nations. The following were among these transportation program visitors.

I. C. Agrawal, Central Road Research Institute, New Delhi, India  
Dave Bean, Gulf Oil Canada Limited, Ontario, Canada  
Senator Lloyd Bentsen, Transportation Committee, Washington, D.C.  
N. Bhattacharya, Indian Statistical Institute, Calcutta, India  
Miguel M. Calderson, Laboratorios Liac, S.A., Mexico  
Kenneth E. Cook, National Research Council, Washington, D.C.  
Ralph Haas, University of Waterloo, Ontario, Canada  
Robert Herman, General Motors Technical Center, Warren, Michigan  
David L. Jones, U.S.D.A. Forest Service, San Diego, California  
G. A. Kennepolh, Gulf Oil Canada Limited, Sheridan Park, Ontario, Canada  
Lidia Kostyniuk, State University of New York at Buffalo, Buffalo, New York  
Marc Los, University of Montreal, Montreal, Quebec  
Ken Nevil, Texas Office of Traffic Safety, State Department of Highways and Public Transportation, Austin, Texas
Program Management

Originally created by the Office of the President May 26, 1972, the Council reports directly to Vice-President H. Eldon Sutton. As Director, Dr. Thomas W. Kennedy is responsible for the general administration of the total scope of Council programs and projects. Since he continues his teaching and professional research activities, Dr. Kennedy is assisted in his operational management responsibilities by Dr. John F. Betak, Dr. Grover Cunningham, and Dr. David A. Sands who provide administrative support to faculty associates and students associated with the Council.
Three Advisory Committees provide suggestions to the Council. An Executive Committee of Deans reviews the Council’s programs. A Traffic Safety Advisory Committee reviews the Traffic Safety Program and makes recommendations to the Director. The Academic Committee assists the Council in coordinating the development and teaching of transportation and transportation-related courses and programs.

The members of the Executive Committee are:
Harold Box, Dean of School of Architecture
Wayne Danielson, Dean of School of Communications
Earnest F. Gloyna, Dean of College of Engineering
Robert D. King, Dean of College of Social and Behavioral Sciences
George Kozmetsky, Dean of College of Business Administration
Lymon C. Reese, Associate Dean, College of Engineering
Elspeth D. Rostow, Dean of L.B.J. School of Public Affairs
A. R. Schrank, Dean of College of Natural Sciences
Ernest E. Smith, Dean of School of Law
James A. Hitt, Acting Dean of General and Comparative Studies
Stanley Werbow, Dean of College of Humanities

The members of the Traffic Safety Advisory Committee are:
John F. Betak, ex-officio, Council for Advanced Transportation Studies
Grover Cunningham, ex-officio, Council for Advanced Transportation Studies
Charles J. Holahan, Psychology
Peter John, Mathematics
Thomas W. Kennedy, Chairman; Director, Council for Advanced Transportation Studies
David A. Sands, ex-officio, Council for Advanced Transportation Studies
Gerhard M. Williams, Jr., L.B.J. School of Public Affairs
C. Michael Walton, Civil Engineering

Dr. H. Eldon Sutton, Vice-President for Research and Dr. Thomas W. Kennedy, Director
The members of the Academic Committee are:

J. Wes Barnes, Mechanical Engineering
John F. Betak, Council for Advanced Transportation Studies
Alan Black, Architecture and Planning
K. Patricia Burnett, Geography
Barbara J. Chance, Sociology
Hal Cooper, Civil Engineering
Linda L. Golden, Marketing Administration
Thomas W. Kennedy, Director, Council for Advanced Transportation Studies
Randall W. Kirk, Management
David A. Sands, Council for Advanced Transportation Studies
Gerhard M. Williams, L.B.J. School of Public Affairs
Martha S. Williams, Social Work
C. Michael Walton, Civil Engineering

Personnel Involvement

As clearly mandated by the goals and objectives of the Council in terms of its multidisciplinary approach to transportation, a broad cross section of the wealth of expertise resident in The University has been continuously involved in Council programs and activities. Since its creation in May 1972, over 80 faculty from 22 departments of 11 colleges and schools, have been actively involved as Faculty Associates of the Council. During 1976-77 alone, 45 faculty and professional staff from 11 departments of 10 colleges and schools have participated in Council programs.

A major area of concern of the Council is the development of graduate students who will enter the transportation profession with skills to assist in the solution of transportation problems in their various fields of expertise. In 1976-77, 27 graduate students from 11 departments of 7 schools have been involved in Council projects.

Undergraduate students have also made a significant contribution with approximately 50 involved in Council programs up through 1975-76 and an additional 12 participating in 1976-77, most of whom were provided financial support by the Council.

FACULTY

Faculty involvement in the Council for Advanced Transportation Studies has been as follows:

Mark I. Alpert, Professor, Marketing Administration
J. Wes Barnes, Assistant Professor, Mechanical Engineering
Michael Benedikt, Assistant Professor, Architecture
Alan Black, Assistant Professor, Architecture and Planning
Harold Box, Dean, School of Architecture
Ronald Briggs, Assistant Professor, Geography, University of Texas at Dallas
K. Patricia Burnett, Assistant Professor, Geography
Barbara J. Chance, Assistant Professor, Sociology
Hal Cooper, Assistant Professor, Civil Engineering
Wayne Danielson, Dean, School of Communications
C. Shane Davies, Associate Professor, Geography
Richard Dodge, Associate Dean of Architecture, Architecture and Planning
Earnest F. Gloyna, Dean, College of Engineering
Linda L. Golden, Assistant Professor, Marketing Administration
James A. Hitt, Acting Dean, Division of General and Comparative Studies
Charles J. Holahan, Assistant Professor, Psychology
W. Ronald Hudson, Professor, Civil Engineering
Peter John, Professor, Mathematics
Thomas W. Kennedy, Director, Professor, Civil Engineering
Robert D. King, Dean, College of Social and Behavioral Sciences
Randall W. Kirk, Lecturer, Management
Darwin Klingman, Professor, Computer Sciences
George Kozmetsky, Dean, College of Business Administration
Linda MacNeilage, Counseling Coordinator, Counseling and Psychology Service Center
B. Frank McCullough, Professor, Civil Engineering
Reuben McDaniel, Jr., Associate Professor, Management
Robert Pollard, Assistant Professor, Economics
Walter S. Reed, Assistant Professor, Mechanical Engineering
Lymon C. Reese, Associate Dean, College of Engineering
Freddy L. Roberts, Visiting Associate Professor, Civil Engineering
Sandra Rosenblum, Assistant Professor, Architecture and Planning
Elspeth D. Rostow, Dean, LBJ School of Public Affairs
A. R. Schrank, Dean, College of Natural Sciences
Craig C. Smith, Assistant Professor, Mechanical Engineering
C. Michael Walton, Associate Professor, Civil Engineering
Stanley Werbow, Dean, College of Humanities
Gerhard M. Williams, Assistant Professor, LBJ School of Public Affairs
Martha S. Williams, Professor, School of Social Work
Robert K. Young, Professor, Psychology

PROFESSIONAL STAFF

Thomas W. Kennedy, Director; Professor, Civil Engineering
John F. Betak, Assistant Director; Lecturer, Management
Grover Cunningham, Assistant Director
David A. Sands, Assistant Director; Lecturer, Management
Delbert Ervin, Information Center Coordinator
Byron Hinderer, Research Engineer Associate
John W. Huddleston, Research Associate
Stephen T. Martin, Education and Dissemination Coordinator
Marion McCord, Information Writer/Editor

GRADUATE STUDENTS

Rita Allison, Office Administration, Business
Behrooz Badiozammini, B.S., Civil Engineering
Carol Beckham, B.A., Library Science
Michael Campbell, M.A., Psychology
Thomas J. Carmichael, B.S., Civil Engineering
Edward V. Chambers, B.S., Civil Engineering
Tommy R. Chimores, B.S., Civil Engineering
Ralph Culler, B.A., M.A., Psychology
Michael Daley, M.A., Psychology
Jose Diaz, B.S., Civil Engineering

Graduate students at computer terminal
Robin Embry, M.A., Mechanical Engineering
Hal Fitzpatrick, M.S., Civil Engineering
Larry Freeman, B.A., Civil Engineering
Nicholas Gualda, M.S., Civil Engineering
Gary Hales, M.A., Educational Psychology
Stephen Horton, B.S., M.B.A., Business
Rajesh Kapadia, M.S.E.E., Business Administration
Yoon Kwak, M.S., Mechanical Engineering
Sheila Mills, M.S., Education
Ellen Kay Schauer, M.S.W., Social Work
Maitree Srinarawat, M.A., Engineering
Roldolfo Tellez, B.S., Civil Engineering
S. Konrad Tzend, M.S., Mechanical Engineering
Deborah P. Valentine, M.S., Social Work
Jhirasak Vathana, M.S., Civil Engineering
Patricia Vines, B.A., Community and Regional Planning
Frank Vasquez, B.A., Business

UNDERGRADUATE STUDENTS

Ramiro Burr, Journalism, Communications
Leslie Bubak, Petroleum Engineering
Sherri Evans, Psychology
Carlos Gonzalez, Accounting, Business
Leigh Anne Grover, Government
Emmanuel Jacobs, Marketing, Business
L. D. Marschall, Computer Planning
Thomas Mellett, Classics, Humanities
Larry Mitschke, Civil Engineering
Hal Mullins, Civil Engineering
Amadeo Saenz, Civil Engineering
Judy Spalding, Journalism, Communications

SUPPORT STAFF

Nancy Webster, Administrative Secretary
Linda Harding, Accounting Clerk
Sandy Bannister, Senior Secretary
Mary Morando, Senior Secretary
Diana Schaefer, Senior Secretary
Cynthia Walters, Senior Secretary
Diane Morris, Secretary

Publications

RESEARCH REPORTS

This report inventories and analyzes the characteristics of local passenger transportation in the state, with special emphasis on the transportation disadvantaged. The document is intended to be a resource tool for all persons concerned with transportation for the disadvantaged in the State of Texas.

This report presents new conceptual and methodological approaches to developing models to interrelate airline schedules, airport-based employee work-shift schedules, and airport access ground traffic volumes in any time period for a given report. The results of a survey of ground travel at the Dallas/Fort Worth Regional Airport are presented and analyzed. Specific ground transportation impacts of the installation of this relatively new airport are assessed.


This report describes the results of a literature review of current materials treating methods to reduce the number of fatalities and injuries attributed in some manner to alcohol. The report is designed to be used, together with related reports, as an educational resource.


This report surveys scientific research as related to seat belts. The efficacy of seat belts, effectiveness of public education campaigns on seat belts, international belt use, and alternatives to seat belts are all reviewed.


This study investigates the relationship between visual distractors and traffic accidents. The three dimensions which are investigated are: (a) number of distractors, (b) color of distractors, and (c) location of distractors, on the perception of a target stimulus. Reaction time was the response measure. Analysis of variance showed that all three dimensions have a significant effect on reaction time, with location having the greatest effect.


In this work, results obtained in the first year on developing an analytical model of an airport system, which can be used to evaluate overall airport capacity, are reported. A working definition of an airport system and a discussion of system components are presented. A review of available capacity models, and a discussion and definition of ancillary activities on flow patterns of people within an airport terminal is presented and analyzed.


This report describes changes to the preexisting program and the other models developed and employed in the current effort to develop and implement a pavement design and management system for low-cost, low-volume roads for the U.S. Forest Service. The models included in the system are described and three example problems are included along with a complete discussion of the inputs required and solutions obtained from each. A copy of the current Low-Volume Roads User's Manual is included.


The Dallas/Fort Worth AIRTRANS system is a "first kind" of new transportation system and is interesting not only in its own right but as a prototype for possible future systems. In this work, a dynamic model is developed which characterizes the principal lateral steering dynamics effects of the AIRTRANS vehicle. Simplified models developed therein are also appropriate for use in relating guideway sidewall roughness to ride quality for possible future automatically steered rubber-tired vehicles.

It appears that the driver under age 30 is overrepresented in the total evidences of vehicular accidents and traffic violations. This report describes the results of a literature review of current materials treating those factors related to age which affect driving safety. The report is designed to be used as an educational resource.

Valentine, Deborah, Martha Williams, and Robert K. Young, *Drugs and Their Effect on Driving Performance*. May 1977. RR 51.

This report surveys scientific research conducted on the effects of drugs on driving ability. Research has been divided into two sections: one dealing with the psychotropic drugs and other dealing with "street drugs." The first section deals with the effects that major and minor tranquilizers, anti-depressant drugs and other prescription drugs have on traffic safety. The section on "street drugs" deals with the relationship between marijuana and the hallucinogen drugs and accident causation.


This report reviews the literature on the association of personality traits and accidents. The personality of the accident repeater is reviewed. In general, aggression seems to be a critical link between alcoholism, depression, patterns of reaction to stress, the theory of the accident process, suicide and accidents. Rather than view an accident as an isolated event, researchers now propose that accidents are preceded by a number of often recognizable signs which indicate stress, anxiety, and conflict.


The relationship between drinking and driving is a complex one. In general, the probability of a crash increases as BAC increases. Alcohol is particularly detrimental for the inexperienced driver as well as for the driver in unfamiliar territory. This report is a literature review and covers research of three major types: research on the physiological effects of alcohol, laboratory and simulation studies of alcohol as it affects driver skills, and epidemiological studies of accidents in fields which may be alcohol-related.

**TEXTS AND HANDBOOKS**


The Handbook was designed to serve as a guide to the conference sessions and to provide supplemental material, information on program development sessions, and a glossary and bibliography. The Handbook is available in xeroxed form.


This Handbook was designed to serve as the curriculum textbook for the Foundations of Traffic Safety Management program. It is intended to be retained by students of the course for use as a reference book following completion of the course. Distribution is limited to those who participate in the course.

This Handbook was designed to be used as a text for the course entitled “Introduction to Statistics and Research Design for Traffic Safety and Law Enforcement Officials.” Distribution is limited to those who participated in the course.


The Glossary and Bibliography was developed as a reference tool to be used by participants of a five-day short course entitled, “Human Services Transportation Planning and Management,” and is meant to provide general assistance concerning the literature and terminology associated with human service transportation planning and management. Distribution is limited to participants in the Human Services Transportation Planning and Management course.


This curriculum was developed in cooperation with the Texas Education Agency and the Texas Office of Traffic Safety as part of a project on alcohol and traffic safety. Distribution is limited to Texas Educational Service Center personnel and designees of the Texas Education Agency.

**MANUALS**


This manual describes the inputs to LVR, a computer program which can be used to compute the most economical designs for an asphaltic concrete or aggregate-surfaced road which meets certain requirements specified by the user. Distribution is limited to designees of the U.S. Forest Service.


This manual is one of a series of data coding manuals developed as part of an ongoing project to provide information on traffic safety matters within a five state region including Texas, Louisiana, Arkansas, Oklahoma, and New Mexico. These manuals provide information necessary to use the applicable traffic accident data sets and are available through the Regional Transportation Information System at the Council for Advanced Transportation Studies.


This manual is one of a series of data coding manuals developed as part of an ongoing project to provide information on traffic safety matters within a five state region including Texas, Louisiana, Arkansas, Oklahoma, and New Mexico. These manuals provide information necessary to use the applicable traffic accident data sets and are available through the Regional Transportation Information System at the Council for Advanced Transportation Studies.

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The Directory contains listings for traffic safety professionals in the United States and in other nations. This publication is available through the Council for Advanced Transportation Studies publications office.

**RELATED JOURNAL ARTICLES AND PAPERS**

Numerous journal articles and papers have been published during the academic year 1976-77. Works illustrative of the types and breadth of papers are shown below.


**RELATED GRADUATE THESIS AND DISSERTATIONS**


COUNCIL FOR ADVANCED TRANSPORTATION STUDIES
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