

# Activities of the University of Illinois Highway Traffic Safety Center

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Traffic safety is one of the major concerns to the well-being of our modern society. In recent years national, state, and local attention has been directed toward problems of highway safety. Congress passed the Highway and Traffic Safety Acts in 1966 and established the National Highway Safety Bureau in order to develop and implement various safety standards. In Illinois, the Governor's Official Traffic Safety Coordinating Committee was organized and charged with developing a statewide traffic safety program which would be compatible with federal programs.

During congressional hearings prior to enactment of the traffic safety bills, two significant deficiencies were identified—the critical shortage of trained professional manpower and the need to conduct comprehensive research in traffic safety.

Although the various state code departments and agencies in Illinois have previously participated in small scale traffic safety oriented training programs and varied research projects, their routine duties preclude their intensive involvement in these areas. Consequently, it is to the state's advantage that the major responsibility for such programs be delegated to a university which, by its inherent characteristics and resources, is exceptionally well qualified to participate in these activities.

The Highway Traffic Safety Center was approved by the University Board of Trustees in April 1961. The establishment of the center was recommended to the president by an all University Committee on Utilization of University Resources for Traffic Safety following a two-year study. University-wide in application, the center was established within the College of Engineering under the supervision of the dean of the college.

The objectives of the center are:

1. To coordinate the otherwise independent efforts of traffic safety instructional and research staff members;

2. To provide a channel through which financial support can be made available for such efforts; and
3. To facilitate the use of traffic safety information resulting from these efforts.

The main intra-university coordination is achieved through the Highway Traffic Safety Center Coordinating Committee which is appointed by the chancellor of the Urbana campus. Current members of the committee are:

- J. A. Adams, professor of psychology, representing the College of Liberal Arts and Sciences
- M. J. Colbert, M.D., representing the College of Medicine, Chicago
- E. Danner, professor of highway engineering, representing the College of Engineering
- A. E. Florio, professor of safety education, representing the College of Physical Education
- J. O'Connell, professor of law, representing the College of Law
- C. R. Taylor, director of Police Training Institute, representing the Division of University Extension, and
- J. E. Baerwald, director, Highway Traffic Safety Center (chairman).

The center's activities are directed toward four major interest areas—formal education, extension education, research, and informational services.

The main functions of the center are to encourage and facilitate interdisciplinary cooperation between the various University administrative units in the field of highway safety, and to serve in a liaison capacity between University units and off campus agencies, both public and private.

The permanent staff of the center consists of the director, assistant director, and a secretary. Additional professional, subprofessional, student personnel are utilized as needed.

## EDUCATIONAL ACTIVITIES

The center does not conduct formal classes but it works closely with the academic departments of the University to evaluate existing traffic safety oriented courses, promote the development of needed courses, and facilitate interdisciplinary cooperation in course offerings and student development. Members of the center's coordinating committee are

currently developing an interdisciplinary graduate program in the area of traffic safety. The proposed program is envisioned to involve the development of traffic safety minors in the graduate programs of the existing academic disciplines. Representatives of the Graduate College are working with the members of the coordinating committee in the development of this program.

A wide variety of extension activities are supported by the center including the cosponsorship of the Annual University of Illinois Highway Engineering and Traffic Engineering Conferences. Each year the center hosts a Regional Youth Traffic Safety Conference under the auspices of the Governor's Official Traffic Safety Coordinating Committee.

National conferences on "Rail-Highway Grade Crossing Safety," "Changes for Automobile Claims," and "Driver Education" have been held on the campus with technical arrangements being made by center staff in cooperation with the Division of University Extension.

Other extension activities include participation in the programs and workshops for such varied groups as the Annual Illinois Editors Traffic Safety Seminar, the Illinois Press Association, driver educators, and personnel of the Illinois Secretary of State's motor vehicle examination office.

The center cosponsored an instructor training program as well as various presentations of the Defensive Driving Course of the National Safety Council. Over 900 University personnel have completed the course.

Negotiations are currently under way with state safety and medical officials for the center to conduct workshops to develop instructors to instruct ambulance attendants in emergency medical services.

## RESEARCH ACTIVITIES

A wide variety of research projects have been conducted by persons from many University departments with the center acting as the prime contract agency. Included among these projects are the following:

1. "Illustrative State Statutory Materials Relating to the Operation of Motor Vehicles at Railroad Grade Crossings," sponsored by the National Safety Council.
2. "An Evaluation of Motor Vehicle Registration and Titling Practices," sponsored by the Highway Research Board, National Academy of Sciences.
3. "Traffic Accident Reporting Criteria of Principal Users in

- Illinois," sponsored by the Automotive Safety Foundation and the U. S. Department of Commerce, Bureau of Public Roads.
4. "A Study of the Durability, Visibility, and Legibility Properties of Annual Reflectorized License Plate Materials," sponsored by the Illinois Secretary of State.
  5. "Construction and Testing of a New Written Driver License Examination for the State of Illinois," sponsored jointly by the Illinois Secretary of State and the National Highway Safety Bureau.
  6. "The Development, Implementation and Evaluation of Examination Materials and Procedures Required for Licensing Motorcycle Operators in the State of Illinois," sponsored by the Illinois Secretary of State.
  7. "Effects of Low Level Blood Alcohol Concentrations on Risk Taking Behavior," sponsored by the National Safety Council.

The center has also cooperated with various University departments in research projects on, "Rural Intersection Illumination Criteria" (in cooperation with the Department of Civil Engineering and sponsored by the Illinois Division of Highways and the U. S. Bureau of Public Roads) and "Comparison of the Effects of Low Level Blood Alcohol Concentration on Psychophysiological Responses and Risk Taking Behavior of Inexperienced and Experienced Drivers of Both Sexes" (in cooperation with the Department of Health and Safety Education and sponsored by the Illinois Office of Public Instruction).

Center personnel and equipment have been utilized in graduate thesis studies on such subjects as, "Psychophysiological Measures of Automobile Drivers Under Traffic and Environmental Conditions," "The Effects of Low Level Blood-Alcohol Concentration on Psychophysiological and Personality Measures under Controlled Driving Conditions," "A Study of Correlations Between Three Measurements of Driving Performance," "Reversible Center Lane Flow on a Three-Lane Urban Arterial," "Effect of Judgment, Age, and Sex on Pedestrian Movements," and "The Effect of Interstate Highway Illumination on Traffic Operations and Driver Behavior."

A wide range of portable research equipment is owned and maintained by the center. Much of it is used to measure driver behavior, vehicle operation, and traffic stream flow characteristics. Such equipment as time and motion photographic apparatus; a drivonmeter to measure the driver's braking, steering, and acceleration reversals; and a dynograph recorder for measuring respiration, heart rate, galvanic

skin response, and nystagmus eye movement are readily available for instruction and research use.

## INFORMATIONAL SERVICES

The center receives numerous requests for information from all over the state and nation relative to University personnel and/or activities in traffic safety subjects. These requests are directed to the appropriate faculty member whenever possible. University expertise has been located in such diverse areas as vehicle illumination characteristics, accident causation due to vehicular failure, traffic accident reconstruction, the effect of narcotics and alcohol on driver behavior, and vehicle inspection.

Center personnel have testified at hearings conducted on traffic safety legislation by both Houses of the Illinois Legislature. The center has been requested by state and national agencies to submit recommendations concerning pending legislation and standards for essentially all major functions bearing on traffic safety improvement.

The center also attempts to apprise interested faculty members of off-campus activities such as professional meetings and potential training and/or research grants. Center funds are frequently utilized to enable faculty members to participate in professional meetings and programs.

Very close relationships are maintained with the Governor's Official Traffic Safety Coordinating Committee and its subcommittees.

## FUTURE PROGRAMS

The University has submitted to the State a proposal for support of the Highway Traffic Safety Center as part of the Illinois Traffic Safety Program. This proposal provides for the expansion of the center's professional faculty, along with a relative increase in non-academic staff. It also provides for the initiation of an outdoor teaching-research facility on an initial area of about 700 acres. Included in the development of this facility would be such things as high and intermediate speed test tracks (for testing vehicle performance, pavement design, traffic control devices, etc.), a driver training range, a skid pad, special testing facilities, and office and laboratory buildings.

The scope of the instructional, research, and testing possibilities at the outdoor facility is limited only by one's imagination. The breadth of these possibilities is perhaps better understood in context with the unique features which the outdoor facility should be able to offer. These include:

1. The high degree of safety guaranteed to the test drivers;
2. The opportunity to install permanent sensing and measuring devices in or along the test roadways;
3. The availability of power and other utilities where and whenever needed;
4. The possibility to conduct high speed research and to perform driver studies under medically controlled conditions;
5. The opportunity to change the environment when required;
6. The availability of specially designed tracks for special types of research; and
7. The availability of land reserved for future research needs.

Because most traffic safety problems are multifaceted, a systems approach encompassing the interaction of driver, vehicle and environmental factors is suggested. In order to employ a systems approach, the expanded staff would need to represent disciplines which would augment the traffic engineering and human factors specialities now present on the center staff. These needed specialities include: physician, systems engineering specialist, safety education specialist, enforcement specialist, lawyer, librarian, and automotive engineer. The expanded staff would function as an interdisciplinary research and service team and would also greatly expand the University's educational offerings through joint appointments in the various academic departments.

## CONCLUSION

The establishment of the Highway Traffic Safety Center as a formal unit of the University of Illinois has greatly facilitated the utilization of the University's vast resources in state and national traffic safety efforts.

The center serves as a focal point to enable the interaction of University and non-University persons and groups in an interdisciplinary manner.

Although the center has been active in conducting various interdisciplinary research projects and short courses and conferences in cooperation with various state and national agencies, its activities to date have been restricted because of the limited budget and staff presently available.

With the increasing concern by state and federal officials for the development of expanded facilities for the education of professional traffic safety specialists and the initiation of a greatly expanded traffic safety research program in the Highway Traffic Safety Center, the State of Illinois has a proven and qualified base on which to build its program to meet these urgent needs.