

# Kentucky Transportation Center

University of Kentucky • College of Engineering

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## Proceedings Kentucky's Twenty-Sixth Forum on Transportation



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Held on the Lexington Campus  
October 19-20, 1989

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1989

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# PROCEEDINGS

**Kentucky's Twenty-Sixth Forum on Transportation  
October 19-20, 1989  
University of Kentucky Campus**

## SPONSORS:

Kentucky Transportation Cabinet  
University of Kentucky  
College of Engineering

## COORDINATING AGENCY:

Kentucky Transportation Center  
University of Kentucky  
College of Engineering  
Telephone: 1-800-432-0719 / 1-606-257-4513

## PROGRAM PLANNING ORGANIZATIONS:

- American Public Works Association  
(Kentucky Chapter)
- American Society of Civil Engineers  
(Kentucky Chapter)
- Area Development Districts
- Kentucky Association of Counties
- Kentucky Association of Highway Contractors
- Kentucky County Judge/Executive Association
- Kentucky Crushed Stone Association
- Kentucky Department of Local Government
- Kentucky Economic Development Cabinet
- Kentucky League of Cities
- Kentucky Magistrates/Commissioners Association
- Kentucky Public Transit Association
- Kentucky Ready-Mixed Concrete Association
- Kentucky Transportation Cabinet
- Kentucky Transportation Center  
Local Government
- Plantmix Asphalt Industry of Kentucky
- University of Kentucky College of Engineering  
(Civil Engineering)

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## PREFACE

### THE UNIVERSITY OF KENTUCKY . . .

was established in 1865 as a land-grant institution and today is made up of 18 colleges: Agriculture, Arts and Sciences, Communications, Engineering, Fine Arts, Law, Business and Economics, Education, Pharmacy, Medicine, Nursing, Dentistry, Architecture, Allied Health Professions, Home Economics, Library Science, Social Work, and the Graduate School. Enrollment for the fall semester 1989 school year totaled approximately 22,900 on the Lexington campus and 36,400 in the fourteen community colleges operated by the University. University staff in the areas of engineering and transportation total 32 in the Transportation Center and 19 on the faculty of the Civil Engineering Department.

Charles Wethington is serving as Interim President of the University of Kentucky, while a search committee is selecting a permanent replacement for Dr. David P. Roselle, who recently resigned.

### THE KENTUCKY TRANSPORTATION CENTER . . .

was established in 1979 as part of the College of Engineering by the University Board of Trustees. The purpose of the Center is to conduct research in the area of transportation and bring together industry, government, and academia in an effort to address transportation problems through research and the dissemination of research findings through technology transfer.

An Advisory Board for the Center was created by the Kentucky General Assembly to assist in policy formulation and to provide direction for the Center. Membership on the Board consists of the Secretary of the Kentucky Transportation Cabinet, the State Highway Engineer, the Dean of the College of Engineering, one member each recommended by the Kentucky Association of Counties, the Kentucky County Judge/Executive Association, and the Kentucky League of Cities, and three at-large members. The Board is appointed by the Governor.

Since July 1, 1984, the Center has been designated as one of the 46 Technology Transfer Centers in the United States. This technology transfer function at the Center is sponsored by the Federal Highway Administration and serves as a mini-transportation extension service to local government transportation agencies.

In September 1988, the Center merged with UK's Transportation Research Program to become one unit in the College of Engineering. The newly realigned unit retained the name Kentucky Transportation Center and yields more efficient management of transportation resources currently available at the University and will allow the Center to be more productive and more responsive to the needs of the Transportation Cabinet, local governments, the private sector, and the University.

The Technology Transfer Section of the Center conducts over 30 workshops annually throughout the Commonwealth, publishes two newsletters (one focusing on research conducted at the Center and the other focusing on

Kentucky transportation issues of specific interest to local government transportation agencies), provides on-site assistance, maintains a lending library, produces non-technical publications on transportation issues, and is the coordinating agency for the annual Transportation Forum.

The Research Section of the Center continues to be the primary research agency for the Kentucky Transportation Cabinet. Engineers and their support staff at the Center published over 60 reports during 1989 and are currently conducting approximately 60 research projects. To assist project engineers in their research and to provide experience and training in the area of transportation research, the Center also employs undergraduate and graduate engineering students.

### **KENTUCKY'S 26TH TRANSPORTATION FORUM . . .**

brought together over 280 professionals from various disciplines throughout Kentucky to address transportation concerns. It provided an opportunity for governments, universities, and industries to interact by discussing important current and emerging transportation issues.

This was Kentucky's Twenty-sixth Annual Transportation Forum, the third Forum coordinated by the Center, and was held on the campus of the University of Kentucky on October 19 and 20, 1989. The Forum was co-sponsored by the Kentucky Transportation Cabinet.

The sessions addressed issues of safe driving on Kentucky's highways with a theme entitled *Traveling Safely in Kentucky*. Topics included the design and construction of safe roads, responsibilities and risks associated with maintaining roads and streets, highway safety concerns for the 1990 General Assembly, engineering and law enforcement partnership, commercial driver's licensing, and financing transportation in the next biennium.

### **THE PROCEEDINGS OF THE FORUM . . .**

documents the activities and exchange of ideas that occurred during the two-day forum and is published as a source of reference for those who participated and as an incentive for others to participate in future forums.



*Calvin G. Grayson, Director of the Kentucky Transportation Center since 1983, holds a BS degree in Civil Engineering from UK. He served the Commonwealth as Secretary of Transportation from March 1977 thru December 1979. Prior to that, he held positions as State Transportation Planning Engineer, Assistant State Highway Engineer, Assistant Director of Planning, Design Engineer, and Bridge Design Engineer, a career spanning three decades. He also was Vice President for Wilbur Smith and Associates.*

### FROM THE DIRECTOR . . .

The University of Kentucky is an institution, not only of higher learning, but with an outstanding reputation for its research programs. It is my belief that the knowledge available at any institution is only as good as that institution's ability to transmit that knowledge to those who might benefit from it.

The Forum is the Center's effort not only to transfer technology, but to provide an opportunity to bring about actual innovation and change through the interaction of governments, academia, industry, and the community.

The 26th Transportation Forum was organized to foster open discussion and audience participation and, therefore, was most conducive to the accomplishment of our purpose to share expertise and discuss issues and ideas relative to how we move people and their goods.

The Forum is a continuance of the concept started in 1949 with the first Kentucky Highway Conference sponsored by the University of Kentucky and the Kentucky Department of Highways. This year's Forum was planned around the theme *Traveling Safely in Kentucky*, and looked at issues that are critical to a safer highway system for Kentucky. All modes of transportation were addressed.

These proceedings have been prepared and published by the Center in its continuing effort to serve the University and the Commonwealth of Kentucky by providing a better understanding of the needs for Kentucky's transportation system both now and in the future.

Calvin G. Grayson

## IN RECOGNITION OF . . .

### CONTRIBUTORS

Sincere gratitude is offered to those organizations who provided financial support for various activities vital to the success of the 26th Transportation Forum. Their insight into the need for the Forum and their confidence in the Center to provide the environment to address that need are most appreciated.

Those organizations include:

Consulting Engineers Council of Kentucky  
Kentucky Association of Highway Contractors  
Kentucky Crushed Stone Association  
Kentucky Ready Mixed Concrete Association  
Plantmix Asphalt Industry of Kentucky

### SPONSORS

The sponsorship of the Kentucky Transportation Cabinet and the University of Kentucky's College of Engineering is gratefully acknowledged by the Kentucky Transportation Center.

### PROGRAM PLANNING COMMITTEE

The following individuals, and the organizations they represent, provided valuable guidance in the planning of the program for the 26th Transportation Forum. Their time, technical expertise, and personal interest provided the support needed for the success of the Forum. The staff of the Kentucky Transportation Center is most appreciative of the input of the following:

Dean Blake, Executive Director, Plantmix Asphalt Industry of Kentucky  
George Blandford, Civil Engineering Professor, University of Kentucky  
John Bruner, Executive Director, Cumberland Valley Area Dev. District  
Joe Clements, Kentucky Association of Highway Contractors  
Jim Deters, Executive Director, Ky. Ready Mixed Concrete Association  
Hans Gesund, Acting Dean of Civil Engineering, University of Kentucky  
John Griggs, Executive Director, Kentucky Association of Counties  
Frank Hamilton, Kentucky Crushed Stone Association  
Mike Haydon, Deputy Commissioner, Dept. of Local Government  
Sue Jeffers, Bluegrass Community Action Agency, Inc.  
Cy Layson, Asst. State Highway Engr., Ky. Transportation Cabinet  
Michael Magee, Exe. Dir., Ky. Co. Judge/Executive Association  
Jerry Pigman, Chief Research Engineer, Ky. Transportation Center  
Ann Shepherd, Project Director, Economic Development Cabinet  
Ron Scott, Kentucky League of Cities  
Andy Terwilliger, Traffic Engineering, Lexington-Fayette Urban Co. Govt.  
Bob Wiseman, Administrative Management Committee, Ky. Chpt., APWA



## KENTUCKY'S 26TH TRANSPORTATION FORUM

Campus of the University of Kentucky  
October 19 - 20, 1989

### PROGRAM

*Thursday, October 19, 1989*

8:00 a.m.            **Continental Breakfast - Room 230**

9:00 a.m.            **Opening General Session**  
—**Worsham Theater**

Presiding:          Calvin G. Grayson, Director  
Kentucky Transportation Center

#### *Welcome and Remarks*

O. Gilbert Newman  
State Highway Engineer  
Kentucky Transportation Cabinet

Dr. Vincent P. Drnevich, Acting Dean  
College of Engineering  
University of Kentucky

**9:00 a.m.            CONCURRENT MEETING**

Ky. Emergency Response Commission—Room 231

10:00 a.m.          **Keynote Address**

Keynote speaker: Dr. B. J. Campbell, Director  
Highway Safety Research Center  
University of North Carolina

10:45 a.m.          **BREAK - Room 230**

11:00 a.m.          **Intelligent Vehicle Highway System**

Speaker:            Dr. John A. Deacon, Professor  
Civil Engineering Department  
University of Kentucky

11:30 a.m.            ***Designing Safe Roads: Who's Responsible?***

Speaker:            Dr. Daniel S. Turner, Professor  
Head of Civil Engineering Department  
University of Alabama

12:00 noon            **Luncheon — Grand Ballroom**

Presiding:            Dean Blake, Executive Director  
The Plantmix Asphalt Industry of Kentucky, Inc.

Speaker:            Gene W. Childress, Executive Director  
Governmental Services Center

2:00 - 4:30 p.m.      **CONCURRENT WORK SESSIONS**

**Sessions will break at 3:15 p.m. for refreshments in Room 228.**

**Design and Construction of Safe Roads and Streets**  
Worsham Theater

Moderator:            O. Gilbert Newman  
State Highway Engineer  
Kentucky Transportation Cabinet

**Design—A Beginning Step**

Glen Kelly, Assistant State Highway  
Engineer for Preconstruction  
Kentucky Transportation Cabinet

**Highway Design—A Risky Business**

Dr. Daniel S. Turner, Head of Civil  
Engineering Department  
University of Alabama

**Standards—If We Don't Set Them, Juries Will**

David C. Oliver, Deputy Assistant  
Chief Counsel  
Federal Highway Administration

**Construction—Meeting the Standards**

Thomas R. Layman, Assistant State  
Highway Engineer for Construction  
Kentucky Transportation Cabinet

**Law Enforcement and Engineering—A Necessary Partnership**  
Small Theater

Moderator: Jerome L. Lentz, Deputy Secretary (Acting)  
Department of Vehicle Regulation  
Kentucky Transportation Cabinet

***Incident Management***

Brig. Gen. J.H. (Mike) Molloy, Executive Director  
Disaster and Emergency Services  
Department of Military Affairs

Sam Lester, Supervisor of Field Operations  
Water Division, Department of Natural  
Resources and Environmental Protection

Pat Dugger, Director  
Environmental and Emergency Management  
Lexington-Fayette Urban County Government

William R. Monhollon, Chief District Engineer  
Kentucky Department of Highways-District 5

Robert L. Freeman, Assistant State  
Traffic Operations Engineer  
Florida Department of Transportation

Capt. Mike Duncan, Commander  
Frankfort Post (Post 12)  
Kentucky State Police

***Commercial Driver's Licensing Law***

O.B. Arnold, President, Kentucky  
Motor Transport Association, Inc.

Mickey Goff, Manager, Commercial Driver  
Licensing Section, Division of Driver  
Licensing, Kentucky Transportation Cabinet

Capt. Tim Hazlett, Commander  
Driver Testing Section  
Kentucky State Police

Col. Joe Breeze, Director, Division of  
Motor Vehicle Enforcement, Department of  
Vehicle Regulation

5:00 -6:30 p.m. **Reception — Faculty Club**

**Friday, October 20, 1989**

- 8:00 a.m.           **Continental Breakfast - Room 230**
- 8:20 a.m.           **General Session - Worsham Theater**
- Presiding:           Leonard K. Peters  
Vice Chancellor for Research  
and Graduate Studies  
University of Kentucky
- 8:30 a.m.           ***Safety Research—Needs  
and Funding Opportunities***
- Speaker:            David K. Phillips, Associate Administrator  
for Research, Development and Technology  
Federal Highway Administration
- 9:15 a.m.           ***Accident Prevention at Rail Grade Crossings***
- Speaker:            R. A. Wells, Chairman  
Kentucky Operation Lifesaver
- 9:45 a.m.           ***Safety Legislation: Concerns for 1990  
General Assembly***
- Moderator:          Calvin G. Grayson, Director  
Kentucky Transportation Center
- Panelists:           Nancy Foster, R.N.  
Crime Prevention Unit  
Jefferson County Police Department
- Ray Larson  
Commonwealth Attorney  
Lexington
- Jerry Pigman  
Transportation Research Engineer  
Kentucky Transportation Center  
University of Kentucky
- The Honorable William M. Lear, Jr.  
Representative, 79th District  
Kentucky General Assembly
- 10:30 a.m.          **BREAK - Room 230**

10:45 a.m.            ***Transportation Finance in the Next Biennium***

Moderator:            Dr. Merl Hackbart, Sr. Associate Dean  
College of Business and Economics  
University of Kentucky

Panelists:             James Ramsey  
Kentucky Finance and  
Administration Cabinet

The Honorable Michael R. Moloney  
Chairman, Senate Appropriations and  
Revenue Committee  
Kentucky General Assembly

The Honorable Joe Clarke  
Chairman, House Appropriations and  
Revenue Committee  
Kentucky General Assembly

12:00 noon            **Wrap-Up Luncheon—Grand Ballroom**

Presiding:             Dr. Robert Hemenway, Chancellor  
Lexington Campus  
University of Kentucky

Speaker:               Milo D. Bryant, Secretary  
Kentucky Transportation Cabinet

Recognition of Roads Scholars

2:15 p.m.              **Adjournment**

**Ky. Young Engineers Meeting - Worsham Theater**

Introductions and Remarks

Milo D. Bryant, Secretary  
Kentucky Transportation Cabinet

O. Gilbert Newman  
State Highway Engineer  
Kentucky Transportation Cabinet

Panel Discussion

**Moderator:** Richard Sutherland, Vice President  
Kentucky Association of  
Transportation Engineers

**Panelists:** Jim Harville, Director, Division of  
Management Services  
Kentucky Transportation Cabinet

John Carr, Engineering Recruiter  
Kentucky Transportation Cabinet

Joe Deaton, Chief District Engineer  
District 4, Kentucky Department of Highways

OPENING SESSION  
Thursday, October 19, 1989

OPENING REMARKS  
Calvin G. Grayson, Director  
Kentucky Transportation Center

Good Morning and welcome to the 26th Annual Transportation Forum.

Last year, we had a terrible rainstorm in November for the 25th Annual Forum, so we decided to hold this year's Forum in October in hopes of having good weather. Well, we moved it to October and now we have had the earliest snow since 1972. It just shows we can't outguess the weatherman!

I want to call attention to those organizations who contributed to the Forum: Consulting Engineers Council of Kentucky, Kentucky Association of Highway Contractors, Kentucky Crushed Stone Association, Kentucky Ready Mixed Concrete Association, and the Plantmix Asphalt Industry of Kentucky. These contributors make possible the continental breakfasts and the reception. We are most appreciative to all these organizations for their help.

We also appreciate the help of the Kentucky Transportation Cabinet in co-sponsoring the Forum again this year. I believe the partnership that we have with the Transportation Cabinet is one of the most important advantages we have in making these forums a success. I don't know of any other university research and technology transfer organization that has the kind of working relationship that we have with the Transportation Cabinet. In fact, I know this is one of the reasons that the Asphalt Institute decided to come to Kentucky for their relocation. They asked me how long it would take to get a demonstration project underway. I said that we could do it with a phone call, followed with a letter, because we have that kind of operating contract with our Transportation Cabinet.

I think the working team we've had with them has been successful in both our research and our technology transfer and also in the success of this Forum. We are most appreciative of their support.

I also want to thank those organizations that participated in the planning for the Forum (see page 4). The Planning Committee wisely chose *Traveling Safely in Kentucky* as the theme for our 26th Transportation Forum. Just last week, I attended an AASHTO meeting in Atlanta where the results of a recently conducted national survey were announced. AASHTO found out that as people move on our highway systems all across the United States, safety was one of the top two most important concerns. It's good to know that our Planning Committee is right on target in selecting safety as our theme this year.

We hope each of you enjoy this 26th Annual Transportation Forum and are able to take away with you new ideas and information to help you in your work in the field of transportation.