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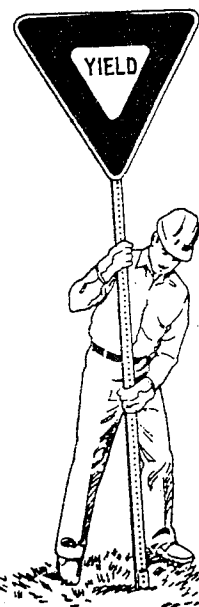
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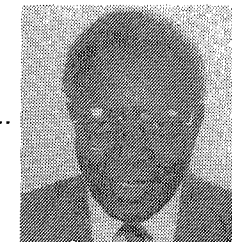
VOLUME XXVIII, NUMBER 2

OFFICIAL PUBLICATION OF THE MICHIGAN SECTION OF THE INSTITUTE OF TRANSPORTATION ENGINEERS

## PRESIDENT'S COLUMN

FROM THE DESK OF .....

Sam Lawson



## BON VOYAGE!

I'm off to the 63rd ITE Annual Meeting in The Hague, Netherlands. Hope to see some of you there. The Dutch Royal Family resides in The Hague and the city is the seat of government in Holland. The Hague promises to provide a charming old world setting for the annual meeting. I was last in Europe (Amsterdam, London, Paris, Brussels, Marseilles, Naples, Athens, Istanbul, ect.) in 1958. I look forward to visiting this area of the world once again after a thirty-five year absence.

The Office of Highway Safety Planning sponsors the Traffic Engineering Enforcement Coordinating Committee (TEECC). The Committee's purpose is a two-fold one, to promote improved communications between engineering and enforcement activities and to coordinate engineering and enforcement in matters of mutual interest concerning highway safety. Joe Marson has represented the ITE-Michigan Section on the TEECC and is stepping down after a number of years of dedicated service. Gary Holben has graciously agreed to act as a liaison between TEECC and the Section to take Joe's place.

The Section entered Student Technical Papers in District III competition. The papers were exceptional, we felt. The winning paper, however, came from the West Virginia Section.

In the August, 1993 issue of the ITE Journal, there are a number of Constitutional Amendments that are under consideration by the International Board of Direction. The proposed changes begin the implementation of the recommendations of the Future Directions Advisory Committee. I trust you have taken the opportunity to read and comment on these proposed changes. Of particular interest to me was the proposed name change to the Institute of Transportation Engineers, Planners and Administrators. As I recall, the committee spent a good deal of time considering possible names that could reflect the diverse transportation activities that make up the profession these days. The recommendation, if memory serves, was the Institute of Transportation Professionals. Apparently, this recommendation did not make the cut.

## EAST LANSING TECHNICAL SESSION

By Mike Kobran

The section members who attended the July 15, 1993 technical session at the University Club in East Lansing experienced an interesting and informative meeting whose focus was on traffic safety, operations, IVHS, and environmental concerns. The host was Tom Malek of Michigan State University. Our thanks are due Tom and his helpers for the arrangements he made and for a smooth-running meeting.

## MSU Research on the Older Driver

Dr. Richard Lyles from MSU's Department of Environmental and Civil Engineering was the first speaker. He explained their NCHRP project on the older driver's reaction to traffic control devices and their findings. Graduate student Martin Kane was their key research manager on the project.

There were five elements to the research;

1. Physiological/psychological
2. Accident and violation information
3. Environmental issues
4. Mobility trends
5. Prior work on traffic control devices

## 1. Physiological/Psychological

There are a host of critical factors associated with the older driver including visual acuity, mental processing speed, reaction time, anxiety, vision, glare sensitivity, problems judging speeds, angular movements, distances, and physical movement. All of these are negative factors when considering the typical older driver. A concept of "attentional windows" was used to define the "usual field of view" related to accident rates. The size of this window decreases in area with age as fewer external environment signals are perceived and processed by the driver.

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**TREASURER'S REPORT**

<b>1. INCOME (Apr. 1 - Aug. 31, 1993)</b>	
Dues	\$ 533.00
Interest	41.32
December, 1992 Meeting	24.00
Meetings	39.00
Late Dues/Fines	39.00
<b>Total Income</b>	<b>\$ 650.32</b>
<b>2. EXPENSES (Apr. 1 - Aug. 31, 1993)</b>	
Postage	327.12
Michiganite	770.00
Printing	48.75
<b>Total Expenses</b>	<b>\$ 1,145.87</b>
Section Fund Balance as of Aug. 31, 1993	\$ 4,310.42
<b>EDUCATION FUND</b>	
Balance as of Mar. 31, 1993	\$ 4,504.14
<b>1. Income (Apr. 1 - Aug. 31, 1993)</b>	
Member Contributions	119.00
Product Show	4,500.00
Golf Tournament	0.00
Interest	58.74
<b>Total Income</b>	<b>\$ 4,677.74</b>
<b>2. Expenses (Apr. 1 - Aug. 31, 1993)</b>	
Vendor/golf postage	29.27
Vendor/golf printing	12.32
Vendor/golf rental	525.00
Vendor/golf caterer	1,465.86
Plaques	74.75
<b>Total Expenses</b>	<b>\$ 2,107.20</b>
Balance as of Aug. 31, 1993	\$ 7,074.68

Respectfully Submitted, *David F. Allyn, Treasurer*  
 Michigan Section, ITE

**Evaluation of IVHS Program in Troy**

Paul Dorothy was the student speaker for the day. He is completing his MS at MSU and is preparing to start his Ph.D. program. Paul was the graduate assistant in charge of the evaluation of the traffic impacts IVHS project initiated by the Road Commission for Oakland County in Troy.

Dave Allyn of the Road Commission first gave some background remarks on the vehicle detection system used in the signal system to provide input to the SCATS program which controls all the signals on the system. What is being used is a video detection system (AutoScope) which is installed 35-40 ft. up on a pole at the intersection to emulate an inductive loop. As might be expected, nighttime and shadows are two of the problems. Of the twenty-eight original intersections in the project, twenty-three had AutoScope installations. The cost per installation of AutoScope is about 60% - 80% more than for loops. Using video detection for pedestrians is currently being studied.

The AutoScope controller, which can presently handle up to 6 cameras and is being designed to handle 8, cost \$35,000 originally but the cost is now down to \$30,000. A controller with less capability costs about \$20,000. The AutoScope system, by measurement, is more accurate than inductive loops.

The MSU research project was focused on (1) corridor delay, and (2) delay at individual intersections using real-time traffic-adaptive signals. Five corridors were selected using intersection volumes, line, volumes, accident rates, and type of road as criteria. The corridors chosen were South Boulevard east of I-75, Maple Road, John R, Coolidge, and Wattles. Data collection was done with a video camera at the crossing of the stop bar of each signalized intersection and tracking vehicles at each camera location. By using the same time frame for recording at all camera locations, travel times could be determined. It was found necessary to smooth out the data by using averages of travel time for groups of vehicles.

Also selected were five different types of intersections including boulevard intersections, mid-block, wide, narrow, and those with protected turns. Two cameras were used, one at the stop bar and one further upstream to measure individual vehicle delay. Again, it was necessary to average groups of five cars to smooth out the results. There were found to be two peaks in the delay during the day.

The findings from the corridor and intersection delays will be used to evaluate how this changes when the SCATS system takes control of these intersections in the expansion of the original 28 to 67 more intersections, which is expected to come on line in August of 1993.

**Clean Air Act Update**

Pete Pociello of MDOT and Bob Craig of the Department of Agriculture brought the audience up to date on the State's activities with regards to Clean Air Act (CAA) requirements. The State Department of Agriculture is involved because of its responsibilities for inspecting gasoline pumps and for assuring motor fuel quality. Mr. Craig told us that there were ten bills currently in progress in the legislature to meet provisions of the CAA. Michigan has two moderate ozone non-attainment areas. The first is the seven-county SEMCOG area (St. Clair, Macomb, Oakland, Livingston, Washtenaw, Wayne, and Monroe). The second area is comprised of Kent, Muskegon, and Ottawa counties. The reasons for adopting a plan for Western Michigan include; public health impact, least negative impact to the economy, Michigan chooses the strategy, not the EPA, public involvement, cost effective strategies emphasizing consumer value can be developed, and a good faith effort toward meeting CAA requirements.

The consequences of not meeting the CAA requirements include the possible loss of \$497 million yearly in Federal highway funds statewide, the restriction of industrial growth and on travel, and the choice of control strategy being left up to the EPA. Part of the state plan is the State I and Stage II vapor recovery systems. The first involves check valves for the underground storage tank (UST) for fuels and the second a co-axial vapor/liquid hose which vents back to the UST.

Pete Pociello then discussed the vehicle inspection and maintenance program in Southeast Michigan. For the last five years or so, the state has required auto emission testing in the Detroit area. This system, using a variety of private testing stations, has been criticized by the EPA as not being effective. The new program would feature biennial testing at centralized sites with different fail values for different vehicle years, a repair subsidy for those on Medicaid, and a vehicle scrapping program. The benefits would be as follows:

- Cost-effective way to comply with CAA (\$500 per ton of pollutants prevented versus \$1500/ton in the present program)
- Provides more than three times emission reduction of a basic mandatory I/M.
- Can be entirely privatized
- Maximizes emission benefits from the program
- Self-supporting (no contributions required from the general fund)

Pete said that the next steps, if the above program does not do the job, will be mandatory car pooling, ride sharing, transit programs, HOV lanes, congestion pricing, and alternative driving days. *Cont. on P. 5*

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## Incident Management Program for Southeast Michigan

Dick Beaubien, Transportation Director for Hubbell Roth and Clark, gave a progress report on the Michigan Section's activity in the incident management program for southeast Michigan. The Michigan Section had been one of the initiators of the original Incident Management Conference in November of 1991.

An incident, defined as something blocking traffic, can be expected to be reported to the proper authorities only 70% of the time. Of those 80% are disablements (one-fifth in a lane, the rest on the shoulder), 10% are accidents (two-fifths in a lane, the rest on the shoulder), and 10% are classified as "other" (30% in a lane, the rest on the shoulder). Incidents cost delay and they cost money. The Detroit area is ranked seventh out of the top 10 metropolitan areas in its estimated annual cost of \$1.4 billion in delays of which \$740 million is attributable to incidents. In 1992, there were 7,000 incidents in the metro area reported to police and Michigan Emergency Patrol. The Detroit Transportation Center of MDOT observed 4,000 incidents in a year during the week-day periods from 7 AM to 6 PM.

March of 1993 saw the start of the incident management program in Southeast Michigan and the formation of task forces. There was a draft report with forty-nine recommendations for a 5-year plan. There were 17 priority recommendations made to MDOT, the State Police, and SEMCOG. These were as follows:

1. Create an incident management center
2. Establish traffic management teams
3. Combine the Metro Transportation Center and Michigan State Police Operations in a 24-hour operation.
4. Develop communications network between police departments, fire departments, and traffic operations.
5. Develop central clearing house for planned/unplanned lane closures
6. Revise 48-hr limit for removal of abandoned vehicles to 4 hrs.
7. Agreements for first agency arriving at an incident to take control
8. Prepare standard boundary maps
9. Install markers at quarter-mile points on freeways
10. Notify jurisdiction's road agency of incidents.
11. Expand coverage of Detroit freeway operations center
12. Encourage towing services and courtesy patrols.
13. Improve coordination between police & fire departments
14. Educate the public to move cars from traffic lanes if possible
15. Plan alternate routes
16. Interjurisdictional agreements

The responses to the problem range from the simple to the complex but all include communication, cooperation, and use of higher technology. An early victory for the program was the routing of all 911 traffic calls going to the Northville State Police post for dispatch to the appropriate agency.

### 2. Accident and Violation information

The typical problems of older drivers include the following; left turns, failure to yield, horizontal curves, improper lane usage, violations, merging/yielding, and following/backing.

### 3. Environmental Issues

The variety of information competing for the driver's information includes congestion, commercial activity, and the multiplicity of signs. Also an environmental problem is the whole issue of night driving and insufficient ambient lighting levels on the roadway for the older driver's decreased level of night vision.

### 4. Mobility

The issue here is that the most significant growth in our country today is in the suburban areas and there is a trend for people to "age in place" meaning that as people become older drivers they tend to stay in the same suburban areas they lived in while in the family-raising years. The suburban environment is seen to be the most critical for the older driver for a variety of factors including congestion, commercial activity, etc.

### 5. Prior Work on Traffic Control Devices

Larger signs and larger letters on signs, along with brighter signs and improved longitudinal placement are some of the responses to the problem of the older driver. Others include greater contract sensitivity, greater conspicuity and sign knowledge, along with message redundancy.

In response to the question as to how the older driver is defined, Dr. Lyles said that the usual break is made at the age of 65.



### District III Director Speaks

John Niehaus, current director, congratulated the Michigan section for being a model within ITE for educational activity. He also announced that Bill Savage of the Michigan Section would be the next District III Director. He also announced an IVHS symposium to be held in Ohio and cautioned that ITE members must maintain an active leadership in IVHS to continue a leadership role.

## 1993 MEETING SCHEDULE

DATE	LOCATION	COMMENTS
Dec. 2	Detroit	Annual Meeting Michigan Section - IMSA
Dec. 9	Metro Detroit	Lunch/Technical Session Section Annual Meeting Michigan Section - ITE

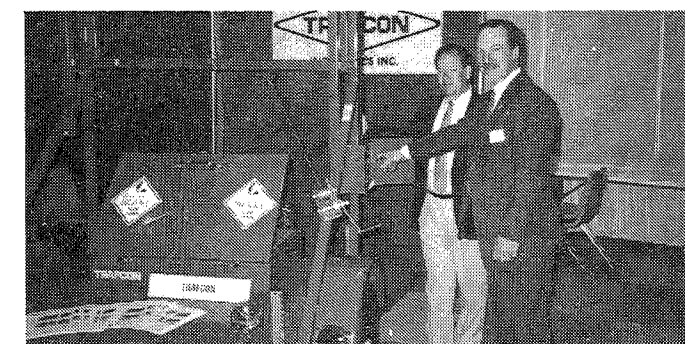
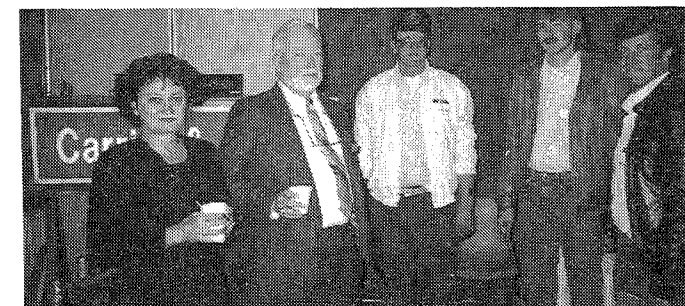
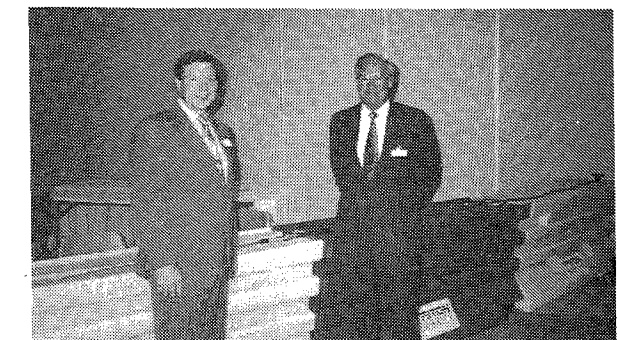
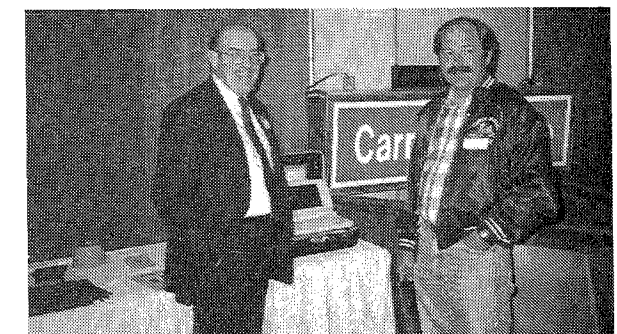
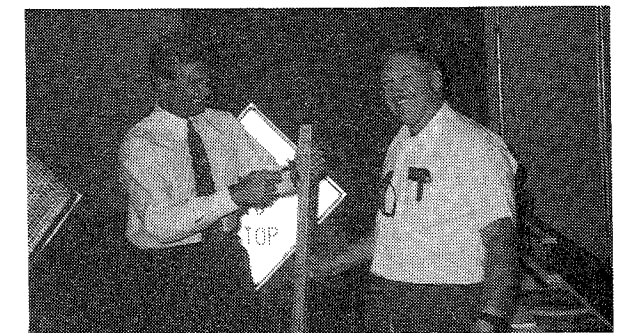
## TRAFFIC AND SAFETY PRODUCT DAY

May 13, 1993

Once again, the Traffic and Highway Safety Product Show at the Southfield Civic Pavilion was a great success. Over 280 visitors reviewed the latest traffic-related products from 23 vendors. The Pavilion provided the atmosphere that allowed this interaction to take place in a very pleasant surrounding. Lunch was served to all. Two special visitors from Poland, Krzysztof Halski and Wojciech Walys, were brought to the product show as guests of the City of East Grand Rapids. The event raised \$2,000 for the Section's Education-Scholarship Fund.

The following vendors were represented; Automatic Signal Eagle, Brite Line Industries, Carrier & Gable, Carsonite, Energy Absorption, Flint Trading Company, Jack Doheny Supplies, Inc., Micro Sensors, Inc., MSC Group, National Sign & Signal, Padafco, Peek Traffic, Rathco Safety, Service Instrument, 3M Sign & Pavement Marking, 3M Company, Trafcon, Traffic Devices, Traffic Control Corp., Unistrut.

Pictures of some of the vendor displays are reprinted here. We apologize for those vendors whose pictures do not appear, as there were technical difficulties.



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## NEW MEMBERS MICHIGAN SECTION I.T.E.

Six new regular members, a technical affiliate, and four student members were approved at the July and September, 1993 board meeting. Some information about the new members is listed below as an introduction to the rest of the membership.

**Frank Cardimen, Jr.** is the President of the Traffic Improvement Association of Oakland County, headquartered in Bloomfield Hills. Frank lives in Rochester.

**Charles Dulic** is the Engineer-in-Charge of the HNTB office in Okemos. He is a graduate of Purdue University (BSCE and MSCE) and is a registered P.E. in Michigan. He lives in E. Lansing and is a member of the International ITE.

**Raja A El-Achkar** is an Engineer of Traffic Operations for the Wayne County Roads. Raja is a graduate of Wayne State University and lives in Grosse Pointe.

**Jerry Hammond** is the City Engineer of Midland where he lives. Jerry is a graduate of Lawrence Technological University and registered as a P.E. in Michigan.

**Lisa Tomsich** is the Assistant District Traffic and Safety Engineer for MDOT in the Grand Rapids District. She lives in Rockford, is a graduate of Michigan State University and has applied for membership in International ITE.

**W. Cary Weatherhead** is the Senior Planner for the HNTB office in Lansing. Cary is a graduate of the University of Michigan and Eastern Michigan University, lives in Williamston, and is a member of the International ITE.

**Randall Wilson** is an Electrical Engineer for Mansell Associates in Farmington. He lives in Plymouth and is a graduate of Lawrence Technological University. Randall has applied for Technical Affiliate membership.

New student members approved from Michigan State University were the following:

**Eric Haugarrrd Matthew J. Goike Sorawit Narupiti**

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Cont. from P. 7

## MDOT Pavement Striping Program

Bill Lebel, an MSU graduate, described the work he and other MDOT Traffic & Safety staff had done in re-establishing the State's pavement marketing program. In recent years the state-wide program had been budgeted as low as \$4 million using alkyd (fast-dry) paints with a life expectancy of 30 days to one year. Through research and analysis, Lebel and his staff convinced management to fund the program at the \$14 million level in FY 1993. The program goal was stated to be, in the short term, year-round visibility in nighttime during dry weather of all markings. For the long term, that goal was for nighttime, wet weather visibility.

Bill described how snow plowing seriously degrades markings because of the underbody plows and that salt and sand applications also did their bit. He also went into the pros and cons of different pavement marking systems. Selection of marking materials was decided chiefly by annualized material costs. Staff decided that raised pavement markers should be used on unlighted freeways and tape on lighted freeways. A new MDOT policy was also developed to use polyester and centerline and lane lines, while water-borne paint would be used for edge lines.

## Student Paper Award Winners for 1993

Bill Savage, chair of the Section Education Committee, gave a brief rundown on the activities and purposes of the committee and also presented the 1993 awards. First prize winner was Gary Pietrowicz of MSU on Traffic Signal Warrants, a paper which he presented to the membership at the March 1993 technical session and was summarized in the last issue of The Michiganite. Second prize went to Debbie Hornbeck, also of MSU, on the Sensitivity of Transyt 7F. Debbie was unable to present her paper so Tom Malek gave a summary of it. It looked at the geometric spacing of traffic signals in an arterial system starting at optimal spacing of one-half mile then measured degradation in terms of increased delay as the spacing decreased. The model showed a classes linear relationship which is not really believed to exist. The results indicate a question about the adequacy of the Transyt 7F model.

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