MICHIGANITE
Official Publication Michigan Section

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FALL 1985

MICHIGANITE

VOLUME XX, NUMBER 3

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

Traffic Signals to be Interconnected with Cable TV

PRESIDENT'S COLUMN

FROM THE DESK OF . . .

BOB LARIVIERE

NEWS FROM NEW ORLEANS

The 55th Annual Meeting of the Institute held in New Orleans will be remembered by those who attended as one of the better annual meetings. The technical program was diversified and exciting, blending a broad cross section of topics and issues which were of special interest to the transportation professionals who attended. Topics of particular interest were presented on litigation, highway safety, urban traffic engineering, traffic operations, and the transportation engineers relationship with the media.

In addition to a fine technical program the city of New Orleans itself offered diversified entertainment and fine cuisine. We were thankful for the air conditioned facilities which negated the hot, steamy temperatures.

At the annual business meeting and the elected leadership breakfast the following information was presented that I felt was important to our Section membership.

Dues Increase - Beginning in 1986, there will be a $10 across the board National dues increase. This increase is necessary to create new task groups, provide support for technical council, promote better public relations, and enhance the ITE Journal.

Section Charter - An amended Section Charter has been approved by the International Board of Direction at their spring meeting. Essentially the amended charter still requires that individuals who are elgible to be a voting member of the Institute cannot be Local Section Affiliates. The Michigan Section Executive Board encourages each Section affiliate who is eligible for National membership to strongly consider becoming a member of the Institute. Applications can be obtained from any Board member or Jon Start, our membership chairman.

New Highway Capacity Manual Training Modules - The development of a program for training on the individual chapters of the new Highway Capacity Manual is about to be initiated. Each module will be self contained. ITE will present the training and will also offer the training materials for use by individuals or groups such as our Section.

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When the cable TV franchise was awarded to provide service to a consortium of communities in Oakland County, the cable TV company agreed to finance a project to demonstrate the use of cable TV for improving traffic signal control. The consortium included Ferndale, Pleasant Ridge, Huntington Woods, Berkley, Royal Oak, Clawson, Troy, Rochester Hills, Rochester, Auburn Hills, and Oakland Township.

In selecting an appropriate demonstration project, traffic officials in these communities concluded that the study area should be one which was in great need of traffic signal interconnection and that it should involve more than one community. The project was expected to use existing technology rather than develop new technology.

The study area selected was a six mile stretch of 14 Mile Road between Woodward Avenue and Dequindre which passes through the communities of Birmingham, Royal Oak, Clawson, Madison Heights, and Troy. This section of 14 Mile Road carries a two-way 24-hour traffic volume of approximately 52,000. Signal interconnect is available on only small portions of this study area and, as a consequence, the public perception is that there is no coordination whatsoever between traffic signals.

The first step in the process of organizing this project was to get a commitment to the project from each of the legislative bodies in the study area. Obtaining approval of the project from each of the five city councils involved took approximately five months. Once these approvals were obtained a request for proposals was issued to qualified consultants. These consultants were given 90 days to submit a proposal for the engineering portion of the pilot study to use the cable television network constructed by Tribune/United of Oakland County to interconnect traffic signals along 14 Mile Road. The proposals were due on February 1, 1985.

After a review of these proposals and discussions with the consultants, Kessmann Associates of Houston, Texas was selected to do the feasibility study and to prepare plan specifications, and estimates needed to install traffic control equipment interconnected with the cable television network.

Because the funding for the engineering study comes directly from Tribune/United, the cable TV company, the contract had to be written between the cable TV company and the consultant. The consortium, although responsible for directing the work of the consultant, was not a party to the consultant contract. This unusual relationship led to some delays in getting an executed contract. However, the contract has now been executed and the consultant has begun his work.

We expect that the consultant will have prepared plan specifications and estimates needed for this project by late fall of 1985. The installation of the equipment will be financed with Federal-Aid Urban Systems funds. We expect the installation work to occur in 1986.

By Richard F. Beaubien, P.E.

Call for Papers

For the
56th
ITE Annual Meeting
Indianapolis, Indiana
September 7-11, 1986

The ITE Technical Council invites the submission of papers for presentation at the 56th ITE Annual Meeting to be held September 7-11, 1986 in Indianapolis, Indiana. Submissions due by November 15, 1985.

Topics

The Technical Council will consider all abstracts, although preference will be given to the specific subjects outlined below.

1. **Transportation Manpower Needs: Industry's Requirements, Educational Preparation, and Registration.** Do universities properly prepare the transportation professional for his future role?
2. **The Transportation Engineer's Role in Hazardous Material Routing.**
3. **The Traffic Engineering Process in the Computer Age.** Typical state, local, and consulting engineering computer applications for traffic engineering, planning, maintenance management, inventory management, and administration.
4. **Procurement of Transportation Products.** Procurement methods, sources of information.
5. **Maintenance.** Traffic control on urban freeways, traffic control device maintenance, sign replacement programs.
6. **Demand Modification.** Road pricing, auto-restricted zones, public transportation subsidies, alternate work schedules, restricted parking supply.
7. **High-Tech Impacts on Transportation.** Route guidance systems, communications, highway advisory radio.
8. **Regional Transportation Operations.** Optimization of "system" operations through "on-line" cooperation among agencies.
9. **Public/Private Participation in Financing Transportation Improvements.**
10. **Traffic Signals.** Small computerized signal systems, signal timing optimization projects.
11. **Solving Traffic Congestion Problems Through Optimization of Existing Resources.** Cost-effective transportation improvements.
12. **Transportation: Our Heritage – Our Future.** Evolution of the transportation profession, where we're headed in the future.
13. **Future of Transportation Planning.** Trends affecting transportation, socio-economic shifts, changing lifestyles, changing demographics.
14. **Geometric Design and Traffic Control for Low Volume Roads.**
15. **Impacts of Large Trucks.** Safety, operations, pavement deterioration.
16. **Highway Reconstruction.** Geometric design, safety, and traffic control issues.
17. **Role of the Transportation Engineer in Creating Local, State, and Federal Legislation.**
18. **Experiences with the 1985 Highway Capacity Manual.**

Deadlines

Persons desiring to present a paper at next year's ITE Annual Meeting should submit an abstract to be received by the Technical Council no later than November 15, 1985.

Format

Abstracts should be 300-500 words in length and fill no more than two typewritten pages. The author's name, title, and mailing address should appear on the abstract. Six copies of each abstract are required.

Submission

Abstracts should be sent to:

Technical Affairs Director
Institute of Transportation Engineers
525 School Street, S.W.
Suite 410
Washington, D.C. 20024-2729

MICHIGAN SECTION ITE - TREASURER'S REPORT

Balance: May 31, 1985	$4,022.08
Receipts:	
Dues and Interest	$ 317.43
Michiganite Ads	325.00
Meetings	320.14
	$ 962.57
Expenses:	
Meetings	$ 825.14
Michiganite	743.60
Postage	257.56
Supplies	37.31
1985 District 3 Contribution	75.00
National Donation	125.00
	$2,063.61
Balance: August 31, 1985	$2,921.04

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MICHIGANITE

Official Publication of the
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MICHIGANITE is published quarterly by the Michigan Section of the Institute of Transportation Engineers. It is distributed to more than 300 ITE members and over 100 cities and counties in Michigan. Address communications regarding the Michiganite to the Editor, Weldon Borton, 1014-B Montevideo, Lansing, Michigan, 48917 (Telephone (517) 321-5457).

KEEP "ITE" NAME - MEMBERS SAY

At the 1985 Annual Meeting of the Institute of Transportation Engineers in New Orleans, the International Board of Direction reviewed the results of a recent member opinion survey. The survey was intended to assist the future Directions Committee and the Board in addressing of proposals to broaden the scope of the Institute.

Responses to the opinion survey were remarkably similar for all portions of the United States, Canada, and the rest of the world. A summary of the survey responses is shown below:

1. The present name of the Institute should not be changed. A majority of members consider the current name to be consistent with the scope of the professionals which should be served.
2. The Institute should be an organization which represents surface transportation professionals by initiating services in various activities areas which will attract membership.
3. A majority of members oppose consolidation of the current fellow, member, and associate grades into fewer grades of membership.

Members who responded to the survey also provided numerous written comments on a variety of subjects. These written comments were discussed at the August Board of Direction meeting and will be discussed further at the January, 1986 meeting.

Other highlights of the International Board of Direction Meeting were a discussion of the National Conference on Urban Traffic Congestion and the Institute's Public Relations Program. The International Board believes these new programs should be vigorously pursued. To assure adequate publicity of the conference findings that additional traffic engineering staff and additional transportation funding are needed to address the problems of urban traffic congestion and to support a high level of member services, the International Board concluded that an additional employee should be added to Headquarters staff. The financial implications of this staff addition led to International Board approval of a $10 per member dues increase for 1986.

The deadlines for the Student Paper Competition were also discussed. Because of concerns expressed by both faculty members and students, papers for the 1986 Student Paper Competition will be submitted directly to the District instead of to the Sections. This change will allow students more time to prepare their papers, but the date for the District award winning paper to be at International Headquarters will remain the same. This change will result in our District 3 Technical Committee having a more direct involvement in the judging of student papers.

By Richard F. Beaubien, P.E., District 3 Director

NEWS FROM NEW ORLEANS

continued from page 1

Newsletter Award - The Newsletter Award was won for the third time in four years by the Westernite. Since there is a feeling that the large circulation of the Westernite gives it an unfair advantage in the competition, award categories based on circulation have been developed for 1986. There now will be three awards presented for circulations of 0-250, 250-500, and over 500.

Next year's Annual Meeting will be held on September 7-11 in Indianapolis, Indiana. This is a unique opportunity for our membership to attend an Annual Meeting since it is being held within reasonable driving distance from our state. The Indianapolis arrangements committee is planning an exciting meeting which will include quality technical presentations, an interesting spouses program, and the best accommodations and entertainment Indianapolis has to offer. The participation and support of our membership is essential to the success of this meeting.

See You In Indianapolis!

SNOWPLOWS DESERVE RESPECT

Those bright pulsating amber lights atop snowplowing equipment on state highways are put there for a very important reason--to warn drivers to use caution when driving near them. These huge orange machines don't move as fast as most traffic and they often extend farther across lanes than other vehicles.

Last winter, motorists ran into snowplows operated by Michigan Department of Transportation (MDOT) drivers 14 times--and MDOT directly maintains highways in only 21 counties. County road commissions do the work under contract in the remaining 62 counties.

Most of the collisions resulted from drivers striking snowplows in the back or side, indicating they were following too closely or passing improperly.

To help motorists avoid accidents involving snowplows, MDOT offers these tips:

-- When following a snowplow truck, stay far enough behind it to avoid having snow from its plows reduce your vision to the point that you won't be able to see well and be able to stop in case of an emergency.
-- When approaching a plow on a two-lane highway, allow extra room at the centerline for the snowplow blade.
-- When passing a snowplow truck, proceed only when your vision ahead is clear. On two-lane highways, snowplows will periodically pull over to let traffic pass. When passing on divided highways, watch especially for snowplows operating in the left lane. They may be moving much slower than traffic and be obscured by blowing snow.

Reprinted from TSA Newsletter.

U. K. PIONEERS BUS TO TRUCK CONCEPT

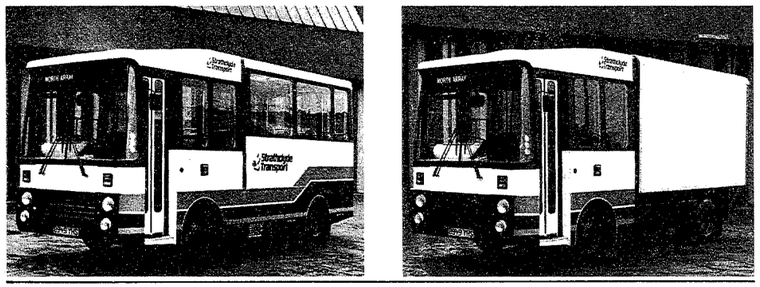
A unique vehicle that serves as both a bus and a delivery van has been put into service by the Strathclyde Passenger Transport Executive (SPTE) in Scotland for rural operations in the face of a cost crunch. It works with two interchangeable bodies -- one a modern midi-bus seating 20, the other a delivery van for freight operations. Alan Westwell, who heads SPTE, had the versatile modules built by local companies for a Dodge bus chassis in an effort to tackle the problem of uneconomic passenger routes that need to be operated only at certain times of the day or on certain days of the week.

When the vehicle is not serving as a bus it delivers goods and packages. Using special equipment, either body can be set down and left standing on built-in extending legs. The chassis can then be driven clear and backed under the other body. The driver can effect the change of use on his own in five minutes. The first of what is expected to become a fleet of modular vehicles is now in operation on the Isle of Arran north of Glasgow and has replaced two vehicles that did not receive adequate use. The body swap vehicle is seen as a breakthrough in cost savings for areas with limited passenger traffic and a parallel demand for freight movement and other kinds of transport.

One year-round job for the Strathclyde bus will be transporting children to and from school. Normally the van module will be pre-loaded with packages to be delivered for the post office while the bus is out on the morning school run. The driver will then change bodies, do a collection and delivery run, returning to his depot in time to pick up the bus body and collect the children from school.

The new development has aroused interest beyond Scotland and its performance will be studied closely with a view to possible applications in other parts of the country. Malcolm Waugh, who chairs the regional council's Highways and Transport Committee, told reporters: "This is the kind of initiative that could save hundreds of communities in Scotland." As evident from the photos, the Transport Executive has succeeded in producing a vehicle which serves as a trim and good-looking small bus, yet in its freight mode has plenty of space for bulky cargoes and a payload of several tons.

Reprinted from URBAN TRANSPORTATION



Now a bus, five minutes later a delivery van

STUDY OF THE EFFECTIVENESS OF DEER CROSSING WARNING SIGNS

Deer crossing signs have been used by the Michigan Department of Transportation (MDOT) for many years with the assumption that they reduce motor vehicle-deer accidents. No warrants for sign installation have ever been established. Signs were frequently installed as a result of motorist's complaints and discussions between MDOT traffic and safety engineers and Department of Natural Resources (DNR) officials. The impact that such signs had on accidents was seldom monitored, nor were there investigations to evaluate other factors which may have had a bearing on the causes of motor vehicle-deer accidents.

In the study to assess warning sign effectiveness, motor vehicle-deer accidents were tabulated over a ten-year period (1973 through 1982) at 37 sites statewide where signs had been installed. Before and after accident rates were computed on a monthly basis for each site and compared with computed rates for the county in which each site was located. Statistical testing indicated that accident rates at the 37 sign sites evidenced a greater reduction (or lesser increase) in motor vehicle-deer accidents than was experienced in the counties in which the sites were located. Although total motor vehicle-deer accidents actually increased after signs were installed, the rate of increase at the 37 combined was less than expected had the signs not been installed. (Motor vehicle-deer accidents increased 86 percent at the signs and 108 percent countywide.) Therefore, the statistical analysis of the collision data concluded that deer crossing warning signs reduced motor vehicle-deer accidents.

The study shows that signs were cost-effective at 24 of the 37 sites. At those locations where signs were not cost-effective, it is suspected that other factors influencing accidents may have been overlooked. Some of the factors which may affect motor vehicle-deer accident frequency include changes in traffic volumes, type of terrain and vegetational growth along highway rights-of-way, changes in crop farming patterns, and weather conditions that may affect deer herd sizes and browsing habits.

The study concludes that deer crossing signs can be cost-effectively used where it can be established that the potential for accidents is high. It was also recommended that an interdepartmental committee (MDOT, DNR, and Michigan Department of State Police) be established to review and evaluate all factors which may influence motor vehicle-deer accidents and to develop warrants for the use of deer warning signs.

By Weldon Borton

CALVIN ROBERTS HEADS UP MDOT TRAFFIC & SAFETY DIVISION

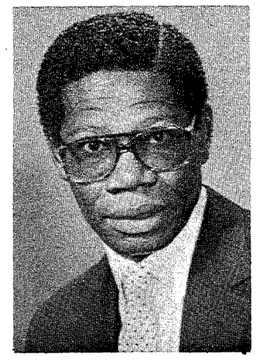
Calvin Roberts of Darien, Connecticut has replaced Maurice Witteveen as the Engineer of Traffic and Safety for the Michigan Department of Transportation. He previously was a vice president of Salmon Associates, a consulting engineering firm in Long Island City, New York. With Salmon Associates he was the Director of the Transportation/Traffic Division with responsibilities ranging from preliminary and final design of transportation projects to environmental and energy studies and marketing.

All of his professional career has been with consulting engineering firms. His experience includes stints as project manager with URS Company, Inc., of New York City, senior project engineer with Wilbur Smith & Associates, New Haven, Conn., and project engineer and design engineer with Frederic R. Harris, Inc., of Stamford, Conn.

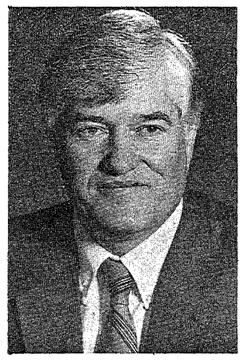
A native of Savannah, Georgia, Roberts has a degree in electrical engineering from Norwalk (Conn.) State Technical College, a bachelor's in civil engineering from New York University and a master's degree in transportation engineering from Pennsylvania State University.

He has taught engineering courses at Norwalk State since 1976 and is an Associate member of I.T.E.

Reprinted in part from MDOT Hi-Liter



CALVIN ROBERTS



MAURICE E. WITTEVEEN

Maurice E. Witteveen, Engineer of Traffic and Safety since 1980, is the new Engineer of Maintenance. He was administrative assistant to the Director for 14 months before his appointment to Traffic and Safety. He also headed Testing and Research's Testing Lab.

Witteveen joined MDOT in 1960 immediately after graduation from the University of Michigan and worked for seven years in the Design Division. He also is a graduate of Yale University's Traffic Engineering School and has served most of his career with the Department in traffic and safety engineering.

Reprinted from MDOT Hi-Lighter

SECTION HISTORICAL MATERIAL

The Bentley Historical Library at the University of Michigan is a depository for Michigan Section historical material. If anyone has any old Michiganites, membership information, Section accomplishments, awards won, or any other memorabilia please send the material to Don Wiertella or Bob Lariviere.

SEAT BELTS FOR SCHOOL BUSES

Legislation (House Bill No. 4892) was introduced this past June which would require each passenger of a school bus to wear a seat belt. It proposes to do so by amending the portion of Michigan's new safety belt law (P.A. No. 1 of 1985) which currently exempts school bus passengers. The proposal is expected to create a large amount of discussion, pro and con, among legislators and members of the highway safety community. Many of the arguments will be based on facts; others will not. In search of some facts, the following article has been taken, in part, from the May 11, 1985 "Status Report" published by the Insurance Institute for Highway Safety.

Canadian Crash Tests

Recent tests conducted by the Canadian government indicate that in severe frontal impacts, lap belts in school buses could do children more harm than good.

The 1985 study of lap belt performance in frontal impacts was conducted by Transport Canada, the equivalent of the U.S. Department of Transportation.

The "School Bus Safety Study" was written by G.N. Farr, an automotive safety engineer with the crashworthiness section of Transport Canada. The tests were conducted under contract with Calspan, a private research company. The Canadians conducted three full-scale 30 mph barrier impacts using various sizes of dummies, some equipped with instruments to record injury level. The vehicles tested were a 66-passenger Blue Bird school bus, which meets U.S. standards designed to protect unbelted occupants, and two smaller buses seating 20 and 22 passengers.

The lap belted dummies on the large bus recorded head impacts two to three times more severe than the unbelted dummies. But by far the worst scores were recorded by the lap belted dummies on the small buses.

Digges noted, as have other NHTSA officials, that in side and rollover crashes, belts would provide safety benefits to school bus occupants. However, he contends that lap belts for large buses are a poor investment from a cost-benefit point of view. "You'd be better off spending the money on better brakes and better drivers," he says.

In Canada, large school buses meet safety standards that are similar to U.S. requirements. However, small Canadian school buses weighing less than 10,000 pounds are not equipped with lap belts and the head protection zone and seat spacing measurements differ from U.S. requirments.

Transport Canada concluded that in the tests "the belted dummies experienced higher head accelerations, lower chest accelerations, and more severe neck extension than did the unbelted (dummies). This indicates that if lap belts are installed on current designs of school bus seats, a greater potential for head injury exists."

The report said that the "passive occupant restraint system (compartmentalization) required (by Canadian safety standard 222) since 1980 functions as intended during frontal impacts and provides excellent protection for occupants."

William T. Gardner, head of crashworthiness engineeering for Tansport Canada, says the tests were conducted because it might be more damaging to add lap belts and previous studies indicated that head and neck injuries might be aggravated by them. The tests were done to answer those questions. About 55 percent of all school bus crashes in Canada during 1981 were frontal, the report noted.

For the test series, 4-foot, 10-inch, 5th percentile adult female anthropomorphic dummies were used in each bus. Three were belted and three were unrestrained in each bus. Each was instrumented to determine head and chest acceleration during the crash.

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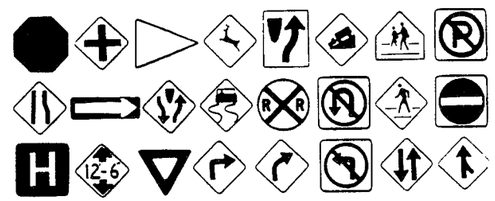
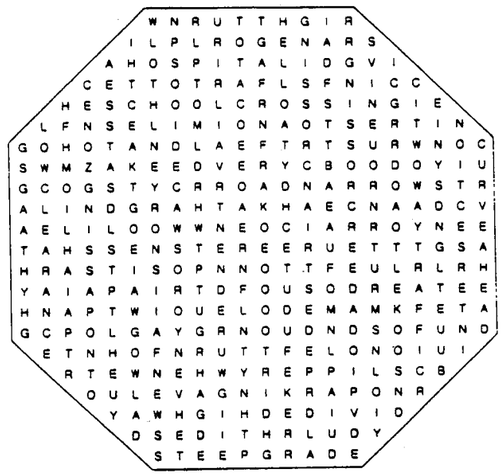
TRAFFIC SIGN WORD SEARCH*

If you've been keeping up with the signs of the times, this word search should be right up your alley. The meanings of the 24 road signs below are hidden within the stop sign grid, some horizontally, some vertically, some diagonally, but each one in a straight line- No Turns Allowed. Top notch ITE members should be able to find all the answers.





*FROM JUNE, 1984 "GAMES" MAGAZINE

MARS VALIDATED

Primary validation of the Michigan Automated Records System (MARS) has been completed. The system is a specially designed set of electronic sensing and location measuring equipment intended to produce roadway alignment and geometric feature data as the housing vehicle travels the roadway. Generating computer produced roadway pictures is essential to systemwide safety studies and development of roadway inventories. With the exception of vertical curves and grades, all tested outputs are consistently within tolerance requirements.

Operation of the MARS vehicle involves sighting a National Geodetic Survey (NGS) monument with the total station; driving the prescribed route (approximately 20 miles) at highway speeds and then sighting another monument at the end of the route. Based on the known coordinates of the monuments, the recorded horizontal and vertical position of any point along the route is calculated by the software and alignment plots can be generated directly from the MDOT computer graphics equipment. Intersection names and distances, type of control, laneage, and speed limits are also reported along with the printed output of alignment information such as location, length, and degree of horizontal curves and location, length, and grade of vertical curves.

A major problem in producing consistent data on vertical curves and grades has been the sensitivity of the MARS system. Each stop for sighting a monument, a stop sign or a signal resulted in a false vertical curve. Another factor affecting these two items was the closed loop configuration of the validation route. We were able to match over 70 percent of the vertical curves and grades when comparing subsequent runs on the validation route. Although this technically exceeds the allowed error percentage, it was agreed by the Department, OHSP, and FHWA that this was the best the system could reasonably be expected to provide on this type of route.

Much work remains before a full analysis of this project can be done. We intend to do a pilot project of Ingham County for use as a source of data for interfacing MARS with MALI milepoints as well as geometric data for interfacing with MIDAS. When this is completed and all data analyzed, a decision will be made to continue a survey of the original 40,000 miles of state and local roadways or scale down to a smaller size project.

We are aiming to complete the pilot project by September 30 and evaluate the usefulness of the data by the end of October. At this point, application of MARS to accident analysis looks very promising.

By Tom Weiss and Bob Maki

TRAFFIC SIGNAL OPTIMIZATION PROGRAM IN MICHIGAN

As a result of an agreement between the U.S. Department of Energy and various oil companies, which claims and disputes over oil overcharges, the affected states could make application for a refund of a portion of the over charge refunds. The refund application was to outline programs which were designed to benefit consumers of petroleum products and provide restitution to those injured by the overcharges.

In March, 1984, the state of Michigan received a grant of approximately $2,084,000 for seven programs for which it had made application. One of these seven programs involved the optimization of the signal timing of more than 1,000 traffic signals located in 25 cities around the state. Because of the magnitude of the program and the two year time frame imposed by the U.S. Department of Energy for spending the refunds, consultant engineering services were sought.

A request for proposal was prepared and submitted to 13 consultant engineering firms and responses from eight firms were received and evaluated. The successful consultant was Goodell-Grivas, Inc. of Southfield, Michigan.

The responsibility of the consulting firm is to collect the data needed for analysis, provide optimized traffic signal timing, and provide a cost estimate for the implementation of the optimized timing.

The responsibility of the Michigan Department of Transportation is to administer the contract with the consulting firm, oversee the implementation of the proposed signal optimization plans, and evaluate the impacts on the motoring public in terms of reduced fuel consumption and motorist delay.

The contractual portion of the program is to be completed by November 1, 1985, with implementation to begin as soon as the optimized timing plans are finalized. The implementation is to be completed by March of 1986.

The expected results of the project can be computed using a May, 1982 summary evaluation report of the National Signal Timing Optimization Project prepared by the Federal Highway Administration and the University of Florida Transportation Research Center which states that for every dollar invested in signal timing optimization, an annual savings of 7-12 gallons of gasoline could be realized. With a program cost of approximately $786,000, we would expect a fuel savings of between 5.5 and 9.5 million gallons annually. This figure will undoubtedly be greater not consider the savings from reducing stops and motorist delay. A final evaluation will be prepared with the results reported in a future Michiganite.

By Dwight Hornbeck

SEAT BELTS FOR SCHOOL BUSES

continued from page 4

Some of the dummies were instrumented to measure knee and upper leg injury data. Other, smaller dummies were placed on the large bus to provide a photographic comparison with the larger dummies.

None of the test dummies were certified for compliance testing under U.S. Federal Motor Vehicle Safety Standard (FMVSS) 208. Therefore, a calculated head injury criterian (HIC) level of 1,000 for the dummies used in these tests cannot be correlated with the HIC level of 1,000 set as the upper limit under the U.S. occupant safety rule. However, the measurements obtained in the Canadian crash tests can be used to compare lap belted and unbelted performance of the dummies used in each of the school bus tests.

The barrier crashes of the two smaller buses showed that in all cases, the dummies secured by lap belts measured HIC values exceeding 1,000 - and in some cases, scores in the 2,000 plus range were calculated. All unrestrained dummies had HIC values of less than 1,000.

"From these results," the Farr report said, " it must be concluded, that for frontal impacts, the restrained occupant would receive more severe head injuries than the unrestrained one. One can further conclude that injuries could very likely be life threatening."

The test films showed that many of the belted dummies' heads struck the seats in front of them so violently that the force bent the heads back on the necks at almost a 90 degree angle. The action was severe enough to be judged to cause serious injury, Farr said.

In the large school bus, the HIC values for the lap belted dummies were about three times greater than for the unrestrained dummies. However, none measured HIC values in excess of 1,000.

The reason they did not, says Transport Canada's Bill Gardner, is that a 30 mph barrier crash of the small bus is much more severe than that of a 66-passenger bus. The smaller buses are much stiffer than the large bus and, in addition, the smaller buses stop much more quickly. Because the large bus body slides on the frame and its front end crushes, much of the crash force is absorbed before it is transferred to the occupants.

The high head injury loads measured by the dummies were, in part, a result of the stiffness of the dummies used in the test, the report noted. Gardner pointed out that the severity of the rearward flexure experienced by the dummy heads after they hit the seats in front of them is particularly noteworthy because the stiffness of the dummies should have acted to decrease the amount of flexion.

During the crash of the large school bus, two unrestrained dummies the size of six-year-olds struck the seat backs below the seat back frame spreading the forces of the crash over the dummies' bodies. "It is expected that this size of child would be better protected by the 'compartmentalization' concept than a larger child," Farr said.

1985 MEETING SCHEDULE

Date	Location	Host	Event
October 22	Detroit	Carmine Palombo	ASCE/District III Meeting
November 7	Flint	Don Berry	Lunch Meeting
December	Detroit Area	Richard Cunard	Annual Meeting/ Technical Session

JULY FAMILY WEEKEND AND TECHNICAL PROGRAM HUGE SUCCESS

Tim DeWitt, of Carrier and Gable, Inc. was again the host at this year's Family Weekend held at Mt. Pleasant's beautiful Holiday Inn on July 26-28th.

This year's outstanding technical program included presentations on: The proposed revisions to the gas & weight tax distribution formulas; Status of the MARS vehicle; Using the Media; Drunk Driving Task Force; and Traffic Engineering in Nigeria.

The technical program began with a panel discussion involving the three levels of government - State, County, and Local, on the merits of the urban road commissions proposal for the revision to the distribution formula for Gas and Weight Taxes. Brent Bair of the Oakland County Road Commission described the county's position in favor of the changes, while Gus Kavalaris of MDOT representing the State and Richard Bueaubien of Troy, representing the Local viewpoint, responded to the contrary.

Robert Maki of MDOT provided the group with an update on the status of the MARS vehicle. Bob reported that MDOT expects to have the vehicle on the road for final field testing and data collection this fall in the Lansing area. While it has been a long time in development, MDOT fully expects the MARS vehicle to live up to its advance publicity.

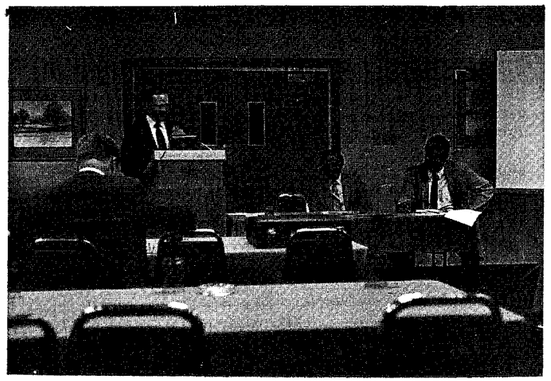
Gary Holben of the Office of Highway Safety Planning reported on the Michigan Drunk Driving Task Force. He described the formation of the Task Force, its makeup and some of the special activities. Some of these were: public hearings on the use of sobriety checklanes; a workshop with national experts presenting to the Task Force; and conducting national surveys on the use of sobriety checklanes and administrative license revocation. Gary also handed out and discussed a digest of the Task Force final recommendations.

Richard Cunard of TIA presented excerpts from the ITE program in San Francisco on "Improving Public Relations Through the Media". This ITE program deals with the why's and how's of developing an effective program for dealing with the media within your agency.

The technical portion of the weekend concluded with Tom Malek of MSU presenting a travel log on traffic engineering in Nigeria. Dr. Maleck contrasted, in the extensive detail for which he has become famous, the fast differences in traffic engineering as practiced in Nigeria with that of the United States.

Saturday and Sunday of the weekend was spent in such mundane activities as: golf, tennis, racquetball, swimming, sunning, shuffleboard, etc.

The ITE members present would like to thank the Vendor's for the outstanding (as always) hospitality suite. Tim - you did a great job again!



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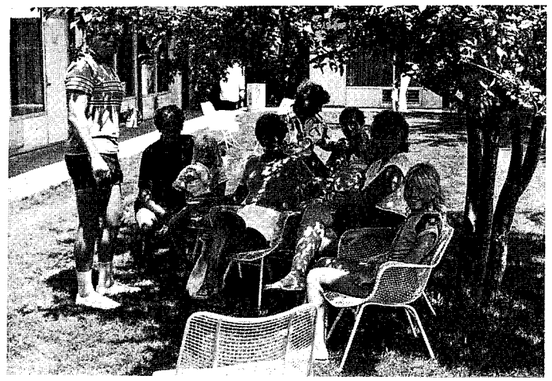

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NOMINATION AND ELECTION OF OFFICERS MICHIGAN SECTION — ITE

The following is a summary of Article V of the Michigan Section - ITE By-Laws. Article V deals with the nomination and election of officers to the Section Executive Board.

Composition of Section Executive Board

The Section Executive Board consists of the offices of President, Vice-President, Treasurer, Secretary, Director, Affiliate Director, and Immediate Past President. Officers are elected annually to assume office on January 1st for a term of one year.

No member can be elected to the same elective office for more than two consecutive terms.

Nomination of Officers

The Nominating committee, appointed by the President, nominates one or more candidates for each office and transmit its list of nominees with their letter of consent to hold office to the Section Secretary by September 15th of each year.

By October 1st, the Secretary sends to the members of the Section the list of candidates nominated by the Nominating Committee. Additional nominations for any office may be made by petition, signed by not less than five Section members who are eligible to vote. Each petititon shall be accompanied by the written consent of the nominee to run for office, and must be received by the Secretary not later than October 15.

Election of Officers

By November 1st, the Secretary mails to each eligible voter a final ballot listing all of the candidates nominated for a Section Office.

The ballots which are returned to the Secretary before the Annual Meeting are counted by a tellers committee appointed by the President. The candidate receiving the highest number of votes for each office is declared elected. In case of a tie vote, the existing Executive Board chooses between the candidates.

THE 55 NATIONAL MAXIMUM SPEED LIMIT IS NOT RATIONAL

That title is the primary focus of the "Citizens' Coalition for Rational Traffic Laws, Inc.". The CCRTL is an organization headquartered in Wisconsin whose goal is to pursue what the members consider more rational laws relating to speed limits on the Interstate System and also on rural highways capable of safely sustaining higher speeds. In essence, they would like the National Maximum Speed Limit (NMSL) eliminated and see realistic speed limits developed through objective means.

The President of CCRTL, James Båxter, has written the Michiganite asking for ITE members to enter the debate on the 55 NMSL. My members and I can postulate and discuss the merits, limitations, and impacts of speed limits, but it is not the same as having the "experts" taking a stand and supporting their contentions with good solid data. The time has come for those persons in the professions most directly related to transportation issues to lend some weight and credibility to our argument that one uniform-arbitrary speed limit is not appropriate for all highways, in all places, at all times."

The CCRTL has more than 16 State chapters and publishes a newsletter. If you would like to learn more about their organization, receive their newsletter, or enter the debate on "55" you may write or call them at the following:

James J. Baxter, President
Citizens' Coalition for Rational Traffic Laws, Inc.
6678 Pertzborn Road
Dane, Wisconsin 53529 608/849-4054

By Joseph Marson

RECESSED PAVEMENT MARKERS

The experience of recessed "plowable" pavement markers in Michigan was presented by Tim DeWitt of Carrier and Gable, Inc. at an I.T.E. technical meeting, held in Lansing, Michigan.

A total of sixteen locations in the lower peninsula were studied to ascertain not only if the marker was physically there, but also how effective the installation was in providing enhanced nighttime guidance.

The majority of installations were placed in 1980 and 1981. Night photography showed the recessed markers under a variety of conditions, from clear moonless night to those with heavy snow and rain.

Installation of the markers was accomplished by both a local governmental agency with their own forces, and by a contractor for the Michigan Department of Transportation.

A 40" x 4" x 1/2" groove was cut into the pavement by a 65 hp. concrete saw, tapering the depth from 0" to 1/2" the length of the cut. The recessed marker (Stimsonite Model #947), was epoxied into place flush with the roadway surface. Installed in this manner, the markers demonstrated very excellent "snowplow survivability". No snow-plow damage occurred when installed properly in this manner. The marker was the "star of the road", guiding the motorist through all types of climatic conditions.

The correct procedure for installation of the markers is important to insure their longevity. In those few locations where the markers depth upon installation was slightly above the pavement surface, the underbody scraper blades would "shave off" the extended part of the marker. What was surprising in the study, was that the undamaged portion of the marker was still effective.

Extending the effective service life of the marker has also been increased by the addition of a glass lens. The lens covers the reflective surface to aid in scratch resistance of the surface.

One other question that had to be addressed in this study concerned the ability of the groove to "clean" itself after debris and/or water collected in it. Investigation showed that where snow, slush, and debris were concerned, if the groove was located in a horizontal curve, the accompanying traffic demonstrated enough crossover on the centerline that the groove readily cleaned itself. This indicated that in this high hazard location (the curve), the recessed markers were very effective in providing the motorist with good delineation to effectively navigate the roadway.

Considering the opinions voiced thus far, from all who have tried the recessed pavement markers, the system is a winner. Not only for the governmental agency who elects to use them, but the motorist as well. The system does work, and it is cost effective, ranking 3rd in a cost/benefit study done by the FHWA.

By Tim DeWitt