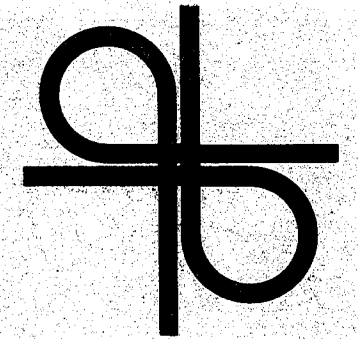


MICHIGANITE

OFFICIAL PUBLICATION

VOLUME 10 NUMBER 2

SPRING 1975



MICHIGAN SECTION INSTITUTE OF TRAFFIC ENGINEERS

PRESIDENT'S COLUMN

Your Board of Directors has now established ten goals for the Michigan Section during 1975. These goals are printed separately elsewhere in this issue of the MICHIGANITE. The Board is now working on means of implementing each of the goals. If you have any suggestions please let one of the Board members know.

One of the goals approved is to encourage greater participation in ITE technical work. All ITE technical committees are staffed by volunteers with most committee business done by mail. In the past some technical committee work has dragged on for several years and it often seemed as though little was accomplished. Steps have been taken however to limit the scope of each committee so that its work can be in about a year. Travel to meetings is not necessary. Your participation is usually limited to replying to correspondence and reviewing material and data submitted to you.

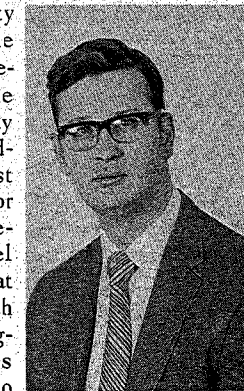


under Departments 4 and 5 a list of their new committees should be published in the new year book. Technical Committee work benefits you, your employer and our profession as a whole.

At the April meeting your Board of Directors took up the question "Should the Michigan Section take a stand on the pending 'right turn on red' legislation which is currently before the Michigan legislature?" Because there appears to be insufficient evidence to support or oppose the legislation and there is not a unified position among the members, the Board decided not to take a stand but rather to encourage each member to contact his own legislator on this matter. It is important that we support uniformity and urge passage of legislation that will allow Michigan to conform with the Manual on Uniform Traffic Control Devices. As of now the only legal way to permit a right turn on red is through use of the red arrow. Yet in using the flashing red arrow we are not conforming with the manual which allows use of a sign located at the side of the road. I urge that you, when contacting your own legislator make this need apparent to him.

REEL NAMED NEW HEAD OF MOHSP

Thomas O. Reel was appointed Executive Director of the Michigan Office of Highway Safety Planning and the Governor's Representative with the National Highway Traffic Safety Administration last April by Governor Milliken. He replaces Dr. Noel Bufo who left that post to serve with NHTSA in Washington, D.C., but was brought back to Michigan last month to head up the Office of Criminal Justice Programs.



Mr. Reel, a native of Ohio who currently makes his home in East Lansing, Michigan, served Chief of the MOHSP Program Liaison Section since 1972.

He received his undergraduate degree in Education from Wittenberg University in Springfield, Ohio, in 1963. After teaching school for a short time, he enrolled in the School of Police Administration at Michigan State University, where, in 1965, he received his Master's Degree in highway traffic administration.

WSU-MOHSP TRAFFIC SEMINAR

Dr. Tapan Datta, program director, Civil Engineering Department, Wayne State University, under a grant from the Michigan Office of Highway Safety Planning, is conducting a series of State-Wide Seminars in Traffic Engineering and Safety.

Dr. Datta had this to say about the objectives of the Seminar conducted for Saginaw, Midland and Bay City in May:

"Innovations in technology, planning and systems design in the field of traffic engineering are occurring at a far greater pace today than at any other time in history. In fact, they often appear at a faster rate than our engineers and technicians can use them in their everyday work.

"These rapid developments in traffic engineering theory and practice necessitate continuing education among every person who is responsible for designing, operating and maintaining our transportation systems.

"Thus, the objective of this seminar is to bring engineers, planners and technicians into contact with the current state of the art in traffic engineering and safety according to the specific needs of various communities.

"This seminar is being offered as an educational service for those interested in various aspects of traffic engineering and safety; there is no registration fee."

GIBSON UP FOR DISTRICT 3 DIRECTOR

Arthur C. Gibson P.E., long-time member of the Michigan Section and Past President (1957), has been nominated for District Three Director, it was announced early in May by Joseph A. Ridgeway, Jr., Dist. 3 Secretary. Member Gibson was General Chairman of the 1974 (44th) Annual Meeting of ITE held in Detroit last September. He is manager of Safety and



Traffic Engineering, Automobile Club of Michigan and previously was with the Streets and Traffic Department, City of Detroit, for more than 20 years leaving as head traffic engineer. An ITE Fellow, he has both a bachelor's and a master's degree from the University of Michigan.

CANDID SHOTS OF APRIL 17 TECHNICAL SESSION IN JACKSON



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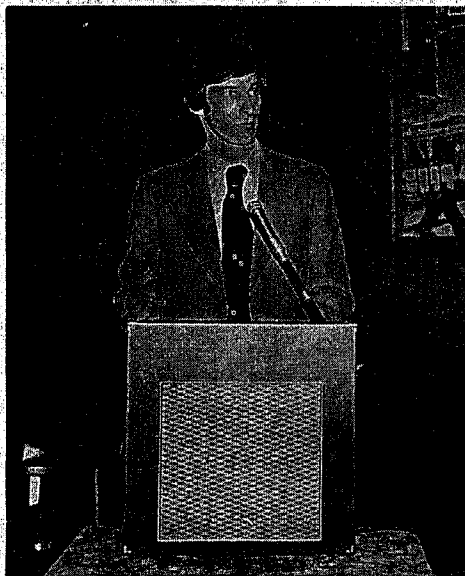
MICHIGANITE

Official Publication
Michigan Section

310 Veterans Memorial Building
151 West Jefferson Avenue
Detroit, Michigan 48226

Richard F. Beaubien, P.E.
Transportation Engineer
500 W. Big Beaver Road
Troy, Michigan 48084





John LeFiere from Michigan International Speedway discussed racing in general and showed a film on racing to the 55 members attending the Jackson meeting.



Jim Neve, MDSH&T District Traffic Engineer, Jackson, introduced the after dinner speaker at the Jackson meeting April 17.



Alan Richardson, Wayne County Road Commission and Chairman of the Section Technical Committee, introduced the speakers in the Student Paper Competition. See Student Speaker story elsewhere in this issue.

MICHIGANITE

Official Publication
Michigan Section
of the

Institute of Traffic Engineers

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Address communications regarding the Michiganite to the Editor:

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Traffic Safety Association of Detroit
310 Veterans Memorial Building
Detroit, Michigan 48226

Prepared by the
Traffic Safety Association of Detroit

RICHARD J. FOLKERS

On behalf of the entire membership of the Michigan Section Institute of Traffic Engineers I wish to express gratitude and appreciation:

- for your years of faithful service to the public through your positions with the Oakland County Road Commission and the City of Detroit;
- for your contributions to the Traffic Engineering profession through your participation on the National Advisory Committee on Uniform Traffic Control Devices, on Technical Committees of the Institute of Traffic Engineers and in teaching others as a lecturer at numerous seminars and short courses;
- for your active participation and leadership in the social, technical and administrative activities of the Michigan Section of the Institute of Traffic Engineers as a member, Committee Chairman, Treasurer, Vice-President, President and Past President and also as District III Vice-President;
- for your willingness to help others in the profession whenever asked for assistance;
- for your friendship.

YOU WILL BE MISSED!!

We wish you and Ginny much success and happiness in your new position in Sacramento and look forward to many future contacts with you.

With Every Good Wish,

Sincerely,
Stanley D. Cool
President

UNIFICATION OF THE FEDERAL-AID HIGHWAY SAFETY PROGRAM

Did you know that efforts are being made to coordinate and unify the Federal-aid Highway Safety Program?

Highway Safety has been a concern of the Federal Highway Administration throughout its history. In the past, this concern has been reflected through individual programs. With the growing number of programs and funding sources, the need has arisen to develop a unified Highway Safety Program.

As a first step in unification, safety functions in our Washington Office will be reorganized under a new Associate Administrator for Safety. At the state level, a full-time position of Safety and Traffic Operations Coordinator is being established in FHWA Region Five Division Offices. I have been assigned to fill this position in the Michigan Division.

Unification is also exemplified in DOT's recent communication to Congress, the First Annual Report on Highway Safety Improvement Programs. Included in the recommendations of the report, was that "all highway safety improvement programs should be combined into a single program with three elements:

1. **Corrections of high-hazard locations.** Combining the present programs of the High-Hazard Locations, Elimination of Roadside Obstacles and part of the Federal-aid Safer Roads Demonstration Program which is not associated with traffic control devices and projects at railroad-highway crossings identified by accident analysis.
2. **Improvement of traffic control devices.** Combining programs of the protective devices portion of the Rail-Highway Crossing Program, Pavement Marking Demonstration, and the signing and marking portion of the Federal-aid Safer Roads Demonstration Program and the functionally obsolete bridges identified in the Special Bridge Replacement Report.
3. **Replacement of structurally deficient bridges.** As now provided by the Special Bridge Replacement Program and identified in the Special Bridge Replacement Report.

Under this single program each State would have greater flexibility in meeting their highway safety needs.

When the President released the additional \$2 Billion this past February, he stated that the expenditure of these funds should be in four areas of emphasis one of which being highway safety.

The emphasis on Highway Safety and the Federal-aid Highway Safety program will be long-lasting based on all available indications.

The basic task ahead is to develop mechanisms to implement the accident data gathered to determine the safety needs under High-Hazard Locations Program. In

Michigan, the Office of Highway Safety Planning of the State of Michigan is responsible for developing and administering the Section 402 program.

Section 402 of the Highway Safety Act of 1966 requires each State to have a highway safety program designed to reduce traffic accidents and the resulting deaths, injuries and property damage. The Program has eighteen uniform standards.

Three standards are administered by the FHWA, (1) Identification and Surveillance of Accident Locations, (2) Highway Design, Construction and Maintenance and (3) Traffic Engineering Services.

One standard, Pedestrian Safety, is jointly administered by the National Highway Traffic Safety Administration and the FHWA. Thus the term *three-plus* Standard areas was derived for the Section 402 program responsibilities of the FHWA.

Currently under the 402 program, the Michigan Accident Location Index (MALI)

CATEGORICAL SAFETY IMPROVEMENT PROGRAM Amount Remaining After 6-30-65

| | |
|---|-------------|
| Section 203 - Rail-Highway Crossing - Elimination of hazards at railroad-highway crossings on the Federal-aid system (excluding Interstate System) with Federal funding of 90 percent of project cost. | \$3,220,000 |
| Section 205 - Pavement Marking Demonstration Program - Application of standard pavement markings to both Federal-aid and non-Federal-aid highways (excluding Interstate System) with Federal funding at 100 percent of project cost. | \$3,880,000 |
| Section 209 - Projects for High-Hazard Locations - Correction of hazards at specific locations or sections on the Federal-aid system (excluding Interstate System) with Federal funding of 90 percent of project cost. | \$3,080,000 |
| Section 210 - Program for the Elimination of Roadside Obstacles - The elimination or reduction of hazards caused by roadside obstacles on the Federal-aid system (excluding Interstate System) with Federal funding of 90 percent of project costs. | \$3,600,000 |
| Section 230 - Federal-aid Safer Roads Demonstration Program - Elimination or correction of safety hazards of all of the above categories on those highways not on any Federal-aid system with Federal funding of 90 percent of project cost. | \$7,720,000 |

which is to expand the State's accident locating capability to all streets and to eliminate the manual locating of trunkline accidents, has been successfully tested in Kalamazoo County with ten more counties to be involved in the system this year.

Important to the success of the entire Highway Safety Program is local involvement. As the roadway mileage under the jurisdiction of individual local governmental agencies makes up a large portion of the total mileage of the State, cities, towns, counties and other political subdivisions are in a position to make a real contribution to safety through comprehensive local programs.

Currently it is estimated that approximately \$21,500,000 of Michigan's apportionment will remain in the following five categorical safety programs after July 1,

TREASURER'S REPORT MICHIGAN SECTION ITE February 25, 1975 - April 8, 1975

| | |
|---|-------------|
| Balance as of February 25, 1975 | \$1,231.64 |
| Receipts | |
| 1975 Dues | \$195.25 |
| March Meeting - Ann Arbor | 563.50 |
| Hospitality Fund | 120.00 |
| Michiganite Advertising | 46.00 |
| Total Receipts | \$ 924.75 |
| Expenditures | |
| Warren Valley Country Club | \$ 50.00 |
| March Meeting - Ann Arbor | 540.15 |
| Hospitality Fund | 224.60 |
| Jere Meredith - Postage and expenses | 50.00 |
| Stanley D. Cool - Postage and expenses | 11.91 |
| City Printing - Michiganite | 156.00 |
| Total Expenditures | \$1,032.66 |
| Balance as of April 8, 1975 | \$1,123.73* |
| * Balance includes \$37.29 in Hospitality Fund. | |
| Gordon E. Melvin Treasurer | |

MICHIGAN SECTION GOALS FOR 1975

(Approved by Board of Directors 4/10/75)

1. Maintain a high standard of technical content for each Section meeting program.
2. Work toward an increase in Section membership.
3. Encourage all eligible to upgrade their ITE membership grade. Also encourage eligible affiliate members to apply for ITE memberships.
4. Encourage greater participation by Michigan Section members in ITE technical committee work.
5. Undertake a Section technical project.
6. Encourage Section Members to make greater contribution of newsworthy items to the MICHIGANITE.
7. Sponsor and otherwise encourage educational opportunities for the membership.
8. Provide increased dialogue between the Section and Student Chapters.
9. Work toward greater public awareness of the Traffic and Transportation Engineering Profession.
10. Work toward improved understanding and cooperation among those disciplines responsible for highway traffic and safety.

Rudolph M. Umbs
Safety and Traffic Operations
Coordinator
Michigan Division
Federal Highway Administration

DISTRICT THREE NEWS

April 21, 1975

To: District Board and Alternates
From: C. E. Riser, District 3 Director
Subject: Synopsis, ITE Board of Direction Meeting, April 17-18, 1975 Louisville, Kentucky

- Approved minutes of January Board Meeting.
- Abbreviated minutes to be sent 7-10 days after Board meeting.
- Transportation & Traffic Engineering Handbook to be available about September 1; delayed because of Dr. Baerwald's illness.
- Manual on Traffic Engineering Studies to be available about August 1. Some Districts and Sections are loaning money to publish. I will poll the District 3 Board on this.
- President Michael to appoint a Transportation Handbook Task Force.
- Recommending to the Federal Highway Administrator that research be sponsored on school crossing problems. This was in response to Paul Graves' request to allow full signalization on main street and stop control on minor street.
- Institute Headquarters Activities and Staffing Study Committee, chaired by Dave Baldwin, have begun work.
- Recommendations of Program Development Conference continue to be acted upon and studied.
- Vice President Gwynn is preparing an article for *Traffic Engineering* magazine on the Fee Fund.
- A proposed policy on the solicitation of funds was tabled.
- The 1974 Annual Report will be available in May or June.
- The International Council is proposing to prepare a directory of transportation and traffic engineering organizations in the world.
- The Technicians Training Program.
 - The 100 Series will be completely available soon.
 - The decision to proceed with the 200 Series has been postponed until August.
 - Bill Simon has been contacting the State Highway Departments.
 - 28 States have been contacted by Simon and 7 of these have sent orders.
 - \$260,000 will be obligated to complete 100 Series, driver education units and workshop units. Orders for \$41,000 received with \$123,000 total potential from the 28 States.
 - To complete the Series 100 effort, the Board authorized borrowing of \$22,000 additional (\$50,000 total) from the Fee Fund.
- Dave Baldwin will be nominated for the National Safety Council's Distinguished Service Award.
- A new secretary has been hired at Headquarters (11th employee).
- Magazine is back on schedule.

17. Yearbook is to be mailed momentarily.

- Installment dues plan not approved because additional personnel required to handle.
- City of Syracuse is downgrading T.E. Department.
- Southern Section has added the Deep South Division (Miss. & La.).
- District 5 has approved a Florida Section UTEC Division.
- Board did not approve District 5 request to drop ITE operating costs assessments from Annual Meeting Registration fees.
- The subject of "Grandfathering" T.E.'s for California P.E. license will be on the Seattle Program.
- Appointed District 8 Board.
- Received 1974 Audit Report - ITE received over \$31,000 in voluntary dues and contributions from Life Members. General Operations lost nearly \$5,600 last year bringing total debt of that fund to over \$23,400.
- Approved a \$100 contribution to STATES.
- The 1974 Annual Meeting made about \$11,000 in profit.
- Received a petition with 171 signatures for name change to "Institute of Transportation Engineers, Inc." Petition was in order. Name change will be balloted upon following the Annual Meeting.
- A change in the Canons of Ethics regarding contributions will be presented at the Annual Meeting.
- Nominating Committee Report for 1976 officers, for President - Bill Gwynn; for Vice President - Ed Mueller and Willa Mylroie.
- Resolutions Committee planning to propose changes in Canons of Ethics and ITE Policies at 1975 Annual Meeting.
- With Board actions, ITE membership now stands at 5,346.
- Three more Dynamic Design Seminars in prospect.
- A computer exchange system approved. An Advisory Committee is to be appointed. Advertisement Soliciting Program Abstracts will be published in magazine. Abstracts will be sold by ITE for \$4 each. Program securement must be through the owner, not ITE.
- ITE has not approved NEMA standards. Technical Council is reviewing member comments.
- The National Committee on Uniform Traffic Laws and Ordinances meets in July. There are 178 proposed changes including many proposed bicycle laws. Charles Mele to replace Bill VanGelder in ITE delegation. Vic Bishop is new alternate. President Michael is to write letter to Sections seeking their input. I would suggest that Section Legislative Committees be prepared to respond quickly.
- Tom Hicks appointed to replace Gene Clifford on the NAC. Tony Kanz was appointed as alternate.

- A joint committee with the American Traffic Services Association (ARBA) is to be formed to agree on Steady Burn Barricade-Warning Lights Criteria.
- Authorized \$3,000 from Publications Fund for first issue of Technical Notes to be published in July. First issue is to be sent free to all members. Thereafter, a \$5 yearly subscription fee is to be charged for 4 issues. Four editors to be appointed with Wes Pringle the first.
- Approved Student Chapter Handbook. Approval will also require charter changes for student chapters.
- ITE will sponsor a forum in Washington, D.C. to discuss UTCS, its alternatives participation by consultants and industry. FHWA has requested such a Forum. President Michael will appoint representatives from consultants, industry and users.
- A commitment for \$2,500 has been received from Automatic Signal toward developing our Traffic Signal Systems Seminars. About \$10,000-\$12,500 is needed as head-in costs. Contributions from other sources appear likely and will be pursued.
- Policy and Legislative Committees are working on defining areas of concern.
- Legislative Committee has sent copy of resolution (Modified) passed at 1974 Annual Meeting on truck weights to appropriate Congressional Committees. President Michael has testified on subject before Senate Subcommittee on Public Works. His remarks are to be published in *Traffic Engineering*.
- ITE is continuing to work with EPA on reduction on vehicle miles traveled concepts.
- Board voted to support IEEE's position paper on the reduced Federal participation in research and development work.
- UTEC is updating their roster.
- Consultant's Council now has 97 firms.
- The Historical Events Committee has been appointed.
- May 15 is deadline for Past Presidents' Award paper. One has been received and several more expected.
- Approved following Board Procedures (Replacing Board Rules and Policies):
 - Procedures of the Board of Direction
 - Dues
 - Annual Meetings
 - Affiliate Subscription to *Traffic Engineering*
 - District & Section Dues of Transferring Members
 - Fee Fund
 - Administrative Committees Revisions
 - Ballots to Students and Affiliates
 - Inactive Status
- First mailing for Seattle Annual Meeting to be made this week.
- Secretary of Transportation Coleman now being asked as Keynote Speaker for Seattle.
- Registration fee itemization will be sent to District Chairman & Section Presidents.

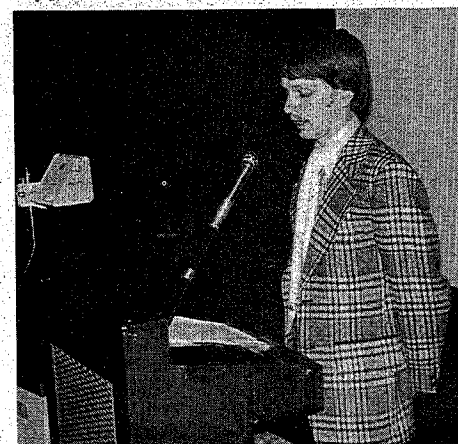
TECHNICAL COMMITTEE HANDS STUDENT PAPER COMPETITION

The first annual student paper competition of the Michigan Section was a rousing success. There were nine papers submitted by student authors from Wayne State University of Michigan. The papers included:

- *Priority Analysis Procedure for Ranking Pedestrian Safety Improvement Projects* by David Perkins, Wayne State University
- *A Methodology for Estimating Bicycle Travel Demand* by P. V. M. Ratnakard Rai, Wayne State University
- *Measurement of a Left Turn Queue at a Two-Phase Signalized Intersection* by Henry A. Fandrei, Wayne State University
- *Urban Problems: Policy Options for Urban Public Transportation and the Automobile* by Dennis L. Merida, University of Michigan
- *The Automatic Work-Order System in a Computerized Sign Inventory* by Richard A. Cunard, Wayne State University
- *The Transportation Value System and the Future* by Timothy R. Neuman, University of Michigan
- *The Interactions of Transportation, Energy, and Environmental Policies* by Timothy R. Neuman, University of Michigan
- *Energy: Policy Options for Urban Public Transportation and the Automobile* by Scott M. Wagner, University of Michigan
- *Social and Demographic Influences on Urban Development and the Implication for Transportation Policy* by Francisco L. Fernandez, University of Michigan

Judging of the papers was accomplished by a "Blue Ribbon" panel of judges consisting of Donald Orne, P.E., Engineer of Traffic & Safety, Michigan Department of State Highways and Transportation, Robert Larson, P.E., Director of Transportation, Wayne County Road Commission, and John Robbins, P.E., Director of Parking and Traffic Engineering, City of Ann Arbor. Grading sheets were furnished to the judges to provide uniformity in the rating.

The three rating sheets were tallied and the top three papers were selected for oral presentation at the April 17, 1975 Technical Session of the Michigan Section in Jackson. The top three papers were *Priority Analysis Procedure for Ranking Pedestrian Safety Improvement Projects* by David

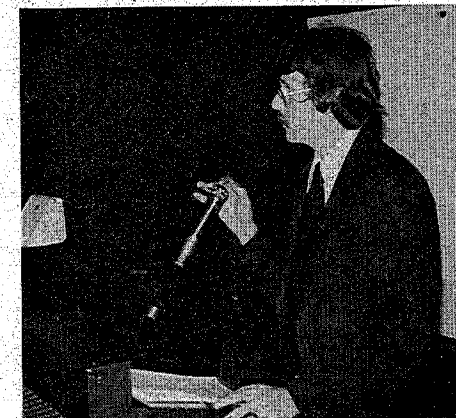


NEUMAN

Perkins; *Measurement of a Left Turn Queue at a Two-Phase Signalized Intersection* by Henry Fandrei; and *The Interactions of Transportation, Energy and Environmental Policies* by Timothy Neuman.

Mr. Neuman's purpose in his paper was to "examine those policy interactions which do occur among transportation, energy and environmental policies, with the hope that some perspective can be placed on policy decisions which have already been made as well as policies proposed for the future."

In Mr. Fandrei's paper, he presented a case for utilization of a simplified queueing model for predicting line length and average delay in the waiting line for a left turn at a two-phased signalized intersection.



FANDREI

A priority analysis procedure was developed by Mr. Perkins for ranking a general set of pedestrian safety improvement projects. The first step in the analysis involved the measurement of community attitudes and opinions concerning the improvement elements. In the final step the magnitude of priority index is determined with the major emphasis placed on the accident experience.



DR. DATTA

Due to a prior commitment to take the Professional Engineer's exam, Mr. Perkins was not able to present his paper. Dr. Tapan Datta of Wayne State University read the student's paper. Based on the compiled scores of the written and oral presentations, the judges awarded the top prize to Mr. Perkins. Certificates were presented to the three finalists and a check awarded to the winner at the dinner.

Alan Richardson
Technical Committee Chairman

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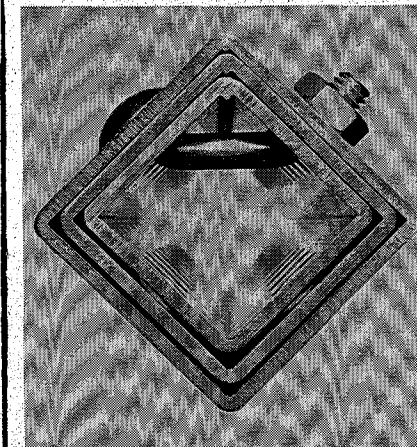
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FOUR WAY STOP CONTROLS

by
William T. Lebel, Traffic Engineer
Michigan Department of State Highways
and Transportation

We are all aware of the accident problems experienced at many high-speed, low-volume, rural intersections on our highway system. Many of the traffic engineering techniques normally used at such locations have not proven effective in the solution of accident problems at this type of intersection.

One possible alternative control now being evaluated by the Michigan Department of State Highways and Transportation is the 4-way stop. In the past, 4-way stops have been considered as an intersectional control applicable only in moderate volume, low-speed, urban - suburban environments. They apparently have fallen into disfavor with many traffic engineers who consider them unsophisticated and only as stop gap measures preparatory to the installation of traffic signal control.

Our limited experience, however, suggests that the 4-way stop can be the ultimate control under certain circumstances. Four such installations have been authorized since late 1971 on the State trunkline system:

M-58 (State) at M-47 (Midland),
Saginaw County, installed 12-17-71

M-57 at M-52, Saginaw County, installed 2-6-74

US-27 BR (State) at US-27 BR
(Lincoln), Gratiot County, installed
10-12-72

M-57 at M-13, Saginaw and Genesee
Counties, installed 2-21-74

In each case the 4-way stop signs were supplemented with various additional controls such as overhead flashers, illuminated case signs, advance warning signs with flashers, etc. All of these locations are more or less rural and approach speeds are relatively high. In particular, the two locations along M-57 reflect the "classic" rural, low-volume, high-speed intersection experiencing a moderate number of severe right-angle collisions.

The total number of collisions at the four locations numbered 56 in the one year preceding installation of the 4-way stop controls. There were 53 injuries and

HARRY W. TAYLOR

On the occasion of your final meeting as a member of the Michigan Section before your transfer to the FHWA Office of Traffic Operations - Signal and Communications Branch in Washington, D.C., on behalf of the entire Michigan Section, I wish to acknowledge and extend our sincere appreciation of your years of faithful service:

- to the public through your position as Area Engineer with the Federal Highway Administration and through your participation in civic affairs, as in the Model Cities Program in Lansing;
- to your profession through active participation in Michigan Section meetings, and Section Technical, Publicity and Program Committees.

You will be remembered for your friendly cooperative disposition by all of us who had professional and social contacts with you. We know you will do well in your next job, especially in the company of our friends Marshall Jacks and Bob Harp who are also former Michigan Section Members.

We look forward to the opportunity to work together again in the future.
Best Wishes.

Sincerely,
Stanley D. Cool
President

6 fatalities. In the year "after", there was a total of 12 collisions resulting in only 4 injuries and no fatalities (see table).

The accident data indicates quite clearly that 4-way stops can be effective in reducing accidents, most notably the high-speed, right-angle collision at low-volume, high-speed intersections. We believe that expansion of this technique is justified and we intend to solicit additional candidate locations from our District Traffic and Safety Engineers for consideration of possible 4-way stop controls.

The delay characteristics of 4-way stops is a parameter which we believe should be studied in the future, since the historic objection to 4-way stops is delay. Research by Messrs. Vodrazka, Lee, and Haenel (*Highway Research Record #366*) predicts that average delay during the peak volume periods at the above locations is less than 20 seconds. Average delay during off-peaks would, of course, be less. Considering our present practices and past experiences with actuated signal control, we do not believe that the operational efficiency associated with signalization is significantly greater than that associated with 4-way stop control in low-volume situations.

In the future, we would also like to experiment with higher volume locations accommodating approach ratios other than the approximate 50-50 split of traffic experienced at the above four locations. Published research indicates that total delay is unaffected by traffic splits ranging from 50-50 to about 80-20.

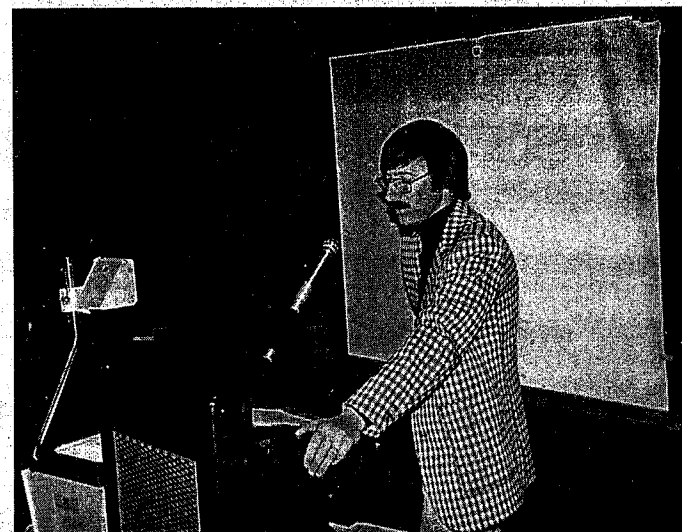
In summary, we believe that the 4-way stop is a legitimate traffic engineering "tool" when applied with discretion. As is always the case, a thorough review of traffic volumes turning patterns, accident experience (particularly types), and geometrics should precede implementation of such an operation. There are published upper volume limits for 4-way stops. In addition, traffic engineering should consider certain unique intersectional features appropriate to 4-way stops, such as volume distribution, speeds and accident patterns and severity.

KRYCINSKI OUTLINES MOHSP TRAFFIC ENGINEERING ASSISTANCE

Thomas R. Krycinski of the Michigan Office of Highway Safety Planning was the first speaker of the afternoon Technical Session held April 17. He reviewed the history of federal involvement in 18 safety programs, the "402" program and the Categorical Programs. (See further, session headed up by Dick Kuzma).

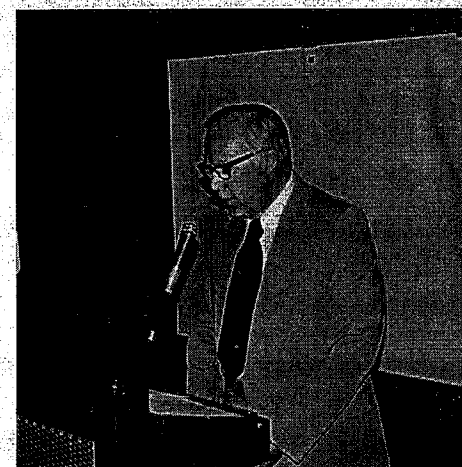
Highlights of his presentation in terms of traffic engineering assistance follow:

"...Some examples of funding in the traffic engineering area available are: traffic engineering training - such as is being given today - also training at local universities or out-of-state universities such as Northwestern University are available. Another one is Eagle Signal School....A unique seminar is being conducted by Wayne State University....topics are selected by you people yourselves and your administrators and then brought right into your shop....tailor-made to your needs. Dollars are also available for bringing traffic engineers on board....doing computerized traffic control device inventories.... having the Department of State Highways and Transportation train your people to conduct manual inventories....and a priority activity labeled as MALI...that is what we call our Michigan Accident Location Index System. It is a system of locating accidents statewide after which various computerized programs can be utilized to



KRYCINSKI

analyze these locations and provide various useful data. In fact this project was piloted right here in Kalamazoo County where it proved its successfulness....We are looking to interest at the county level to help implement this program which is being managed overall through a joint project by the Departments of State Police and State Highways and Transportation. Some non-engineering activities which we fund are ambulances, selective enforcement, school programs for pedestrian safety and bicycle safety....the predominant problem is on the local road network as opposed to the state trunkline system.... There are many reasons for this-predominantly financial-distress and with just not enough bucks to go around. Our office's aim is to provide activity which will interrelate with the Highway Safety Act of 1973 Categorical Programs since in this manner implementation dollars can be gained for your communities. It takes no genius to realize that you can study the death out of something - or maybe I should say that you can't study the death out of something - but without putting the studies findings into action you can not accomplish much!!!!"



STARK

Nelson Stark, Federal Highway Administration, Michigan Division, spoke briefly on the future of the highway safety programs.

Dick Blost, Electrical Devices Engineer, MDSH&T and Section Vice President, presided over both the afternoon technical sessions and the evening dinner meeting. He also presented the awards to the winning students and Dr. Datta.



BLOST



KUZMA

Dick Kuzma, Traffic and Safety Division, Michigan Department of State Highways and Transportation, spelled out the details of implementing the 1973 Highways Safety Act's Categorical Programs. He covered the applicable highways systems and funding of the various sections: 203, Rail-Highway Crossings; 205, Pavement Marking Demonstration Program; 209, Projects for High Hazard Locations; 210, Program for Elimination of Roadside Obstacles, and 230, Federal-Aid Safer Roads Demonstration Program. Total funds for all sections for the three years (1974-75-76) comes to \$9,556,083.



CHISEK

Leigh Chisek, Traffic and Safety Division, Michigan Department of State Highways and Transportation, was the second speaker in the Sessions. His talk was on MALI - Michigan Accident Location Index, with documented presentation from the Kalamazoo experiment.

| LOCATION | BEFORE | | | AFTER | | |
|----------------------|-----------|----------|------------|-----------|----------|------------|
| | Accidents | Injuries | Fatalities | Accidents | Injuries | Fatalities |
| M-57 at M-13 | 17 | 26 | 2 | 3 | 0 | 0 |
| M-57 at M-52 | 15 | 12 | 3 | 2 | 1 | 0 |
| M-58 at M-47 | 15 | 5 | 0 | 5 | 0 | 0 |
| US-27 BR at US-27 BR | 9 | 10 | 1 | 2 | 3 | 0 |
| TOTAL | 56 | 53 | 6 | 12 | 4 | 0 |