

TWO NEW RECOMMENDED GUIDELINES FROM ITE

Recommended Guidelines for Subdivision Streets.

This newly revised recommended practice of the Institute of Transportation Engineers recommends guidelines for the design, layout, and traffic control of subdivision streets. The guidelines address the questions of maximum livability and safe and efficient access.

A review of existing local specifications, national recommendations, current practice and experience was used to develop these guidelines. They are directed at "conventional" subdivisions and are intended for adoption as specific elements within local ordinances.

The first part of the report cites the factors to be considered in subdivision street systems planning, while the second part establishes the individual design elements of the street and pedestrian systems.

Guidelines for Urban Major Street Design.

This report is a recommended practice of the Institute of Transportation Engineers. It presents general geometric

design standards for use on urban major streets. This publication does not include freeway, expressway, rural highways or local urban street geometric design standards.

The guidelines are intended to provide a foundation for rational engineering design decisions on urban major streets. A critical review of the benefits and trade-offs of a design accompanies the dimensions given in the various chapters. Chapters include Lane Widths, Curves, Tapers, Curbing and Clearances, Grades, Medians, Lane Control, Intersection Design and Channelization, Transit, Parking, Driveways, Sidewalks, Bikeways, Lighting, Border Areas and Rights of Way, Location of Underground Utilities and Speed Control.

Both guidelines are available from the Institute of Transportation Engineers; 525 School Street, S.W., Washington, D.C. 20024. Telephone: (202) 554-8050. The price for Subdivision Streets is \$10 for Institute members, \$25 for non-members plus \$2.50 for shipping and handling. The price for Major Street Design is \$25 for Institute members; \$40 for non-members, plus 10% shipping and handling.



MICHIGANITE



SUMMER 1984

VOLUME IXX, NUMBER 2

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

STANDING ROOM ONLY — ON VENDORS' DAY — Page 8



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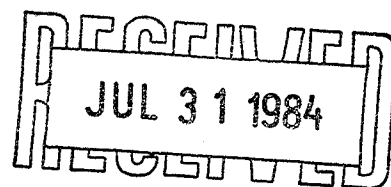
MICHIGANITE

Official Publication Michigan Section

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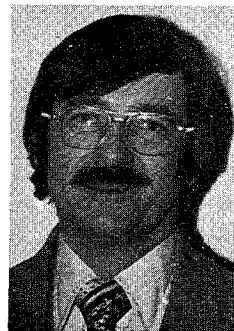


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PRESIDENT'S COLUMN

FROM THE DESK OF...

by Tom Krycinski

I'm pleased to say that my wish to see each of you at one of our meetings throughout this year is well on its way to being satisfied. Our attendance at each meeting has been excellent, even at Grand Rapids which was a new meeting site.

A real thanks needs to go to our meeting hosts who have to be unselfish with their time to make meeting arrangements. It also takes diplomacy and salesmanship on their part. The meeting price you see isn't the first price quoted by the restaurants or hotels that our hosts deal with. Rather our hosts work hard to get lower prices, group rates, etc. Hotels do not give free meeting rooms like they used to for group meals. The job gets more and more difficult each year and our aim of keeping meetings around the \$10.00 price tag adds to the difficulty. So if you get a chance, personally thank our meeting hosts. It would be a nice gesture and would mean a lot to them.

I would draw your attention to two important senate bills, Senate Bills 741 and 742. Senate Bill No. 741 was introduced by Senators Cruce and Faust and would require front seat vehicle occupants to wear proper restraints. Senate Bill No. 742 will cause the issue to be placed on the November, 1988 general election ballot for the general population to decide. These bills were introduced since it was thought that perhaps it might be better to get the legislation started on the senate side first where it appears to have a better chance of passing. So, once more write your senators and support it!

I would also like to bring your attention to our July 27 and 28 family weekend at Mount Pleasant. It's at the Holiday Inn which is an excellent facility for family fun. It has two pools and a beautiful par 3 golf course. Camping facilities are also available. A light technical session is planned and our District III Director, Bill Fehribach, will be in attendance so I'd like to see a decent turnout.

Last, I'd like to personally thank each and every one of you that has taken time this year to unselfishly contribute to our section as a speaker, host, etc. It's much appreciated and surely makes our job as a Board of Directors possible!

AUSTIN'S STATE OF TRAFFIC SAFETY IN MICHIGAN — 1983

In the preparation of an annual report, the activities of the previous year are generally reviewed. Sometimes it is helpful to have a longer perspective. In this regard, a brief review of the past decade in traffic safety is included. Pause for a moment and take yourself back to 1973.

On the national scene, Richard M. Nixon was President and "Watergate" was becoming a familiar word. Claude Brinegar was Secretary of the U.S. D.O.T. and was encouraging the voluntary use of safety belts. Gerald Ford and Martha Griffiths were still in Congress, Brooke Shields was in the third grade, and the war in Viet Nam was officially over.



In Michigan, William G. Milliken was beginning his fifth year as Governor, John P. Woodford was the director of the Department of Highways and Transportation, and Colonel John Plants directed the Department of State Police. Noel C. Bufe was the executive director of the Office of Highway Safety Planning. Neither M.A.L.I. nor Operation C.A.R.E. had arrived in Michigan. James J. Blanchard was an assistant attorney general.

Secretary of State Richard H. Austin was beginning his third year. The original operator's license, which sold for \$6.00, was not available at all Secretary of State branch offices, neither was voter registration. The license plates were dark blue and white, and gasoline was 41¢ per gallon ("unleaded" was a new word). Secretary Austin was advocating a safety belt law to protect motorists on Michigan's highways, Senate Bill 131.

In the past decade, Michigan has charted growth and progress for traffic safety. A quick look at the 1983 statistics shows just how far we have come: 1,320 traffic

cont. page 6

'LOAN BANK' SET UP FOR ROAD PROJECTS

State Transportation Director James P. Pitz has said he will move to implement Governor Blanchard's recent proposal for a state "loan bank" to provide local governments with a ready source of money for road and other transportation projects needed for economic development. The money would be made available on a loan basis from a revolving fund supported by a portion of existing state motor fuel taxes and license plate fees, Pitz said.

Blanchard talked about the concept in a speech to the recently formed Michigan Infrastructure Coalition. It is made up of business, industry, labor, civic and professional groups with a direct interest in upgrading Michigan's "infrastructure"--roads and bridges, public buildings, water and sewage facilities and other public works.

One idea for financing the proposed fund, Pitz said, is to recover money not collected because of a four-cent-a-gallon tax exemption on the sale of gasohol. Last year, the state lost \$22 million that would have been collected had the gasohol tax been the same as the tax on gasoline. This fiscal year, the exemption may cost \$31 million. The exemption was authorized in a move to encourage production of gasohol in Michigan, but has had little effect. "If the exemption were removed, the money could be earmarked for a revolving fund designed specifically to help local units of government to finance transportation improvements needed for economic development projects," Pitz said.

Typically, he said, the borrowed funds would pay for new, widened or reconstructed roads needed for a new industrial complex which a community may not have included in its long-range planning process.

The revolving fund would replace a state grant program which paid for such transportation improvements as the \$19.5 million road and railroad network serving the new General Motors Corporation auto assembly plant in Orion Township, north of Pontiac.

The transportation revolving fund would be replenished by paybacks from communities which benefit from the expanded tax base created by new or expanded business and industry," Pitz said.

A similar state loan concept worked successfully last year after the Governor proposed and the Legislature approved a \$135 million special transportation bond issue. A total of 136 county road commissions, cities and villages obtained 15-year loans at a relatively low interest rate from the bond proceeds and used the money for immediate improvement to roads and streets. Pitz said many local units of government are asking for additional loans this year and the State Transportation Commission and the Legislature will be asked to approve a new bond issue of \$40 million to \$50 million.

Reprint from TSA Newsletter

NATIONAL SAFETY COUNCIL ADDS TRAFFIC ENGINEER

It was interesting to read an article from the National Safety Council which mentioned that they recently hired a traffic engineer to fill a vacancy which has been empty for some years! The article noted that this will permit the council to expand liaison with the engineering community and allow increased attention to the roadway environment. Fred Ranck filled the position. He comes from DuPage County Highway Department in Illinois where he held positions of civil, traffic and senior engineer. He has a master's degree in civil engineering and is a registered professional engineer.

One has to wonder why such an elite organization as the National Safety Council waited so long to fill such a needed position.
Thomas R. Krycinski, President

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MICHIGAN SECTION ITE, TREASURER'S REPORT

Balance: December 31, 1983	\$1,502.00
Receipts:	
Dues, Bank Interest, Postal Refund	\$ 762.00
January & February Meetings	289.73
Miscellaneous	80.50
	\$1,132.23
Expenditures:	
Postage, Printing and Supplies	\$ 341.13
Michiganite Printing	730.60
	\$1,071.73
Balance: February 29, 1984	\$1,561.70
Treasurer, Rich Cunard, P.E.	

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, Robert V. DeCorte, 4750 Napier Road, Canton, MI 48187.

PEOPLE in the news

OHSP HAS NEW DIRECTOR



Karen Gulliver, a past departmental manager in the State Fire Marshal's office, was recently named Executive Director of the Michigan Office of Highway Safety Planning. Karen officially started her position April 22, 1984, assuming the job vacated by Philip Haseltine late in November. Karen had worked for the State Fire Marshal's office more than six years and was a staff assistant to the Speaker of the House of Representatives prior to that.

Karen will have full responsibility for the State's federally funded highway safety program which includes the coordination of the highway safety activities of federal, state and local governments. Additionally, she will serve as the Executive Secretary of the Michigan State Safety Commission.

A 1973 graduate of Michigan State University, from which she graduated magna cum laude, Karen is married and lives in Okemos with her husband and two daughters, Alexis and Jessica. Her husband, Gary, is a legal counsel with the Michigan Legislature.

CONGRATULATIONS DON

The National Society of Professional Engineers has announced the appointment of Don Wiertella to the Board of Governors for the National Institute for Certification in Engineering Technologies (NICET). The term will run until June 1986. Don is also our section secretary.

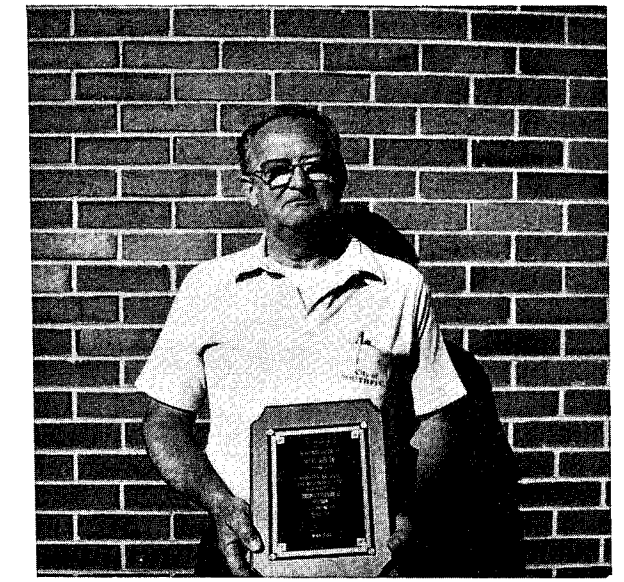
NICET was founded in 1961 by NSPE to serve and promote the technician members of the engineering team. NICET's objectives are to support a viable career for technicians and to function as an examination body to evaluate and test persons who apply for certification.

The NICET Board of Governors is responsible for the policy direction and Budget of the Institute, and is composed of three professional engineers, and four certified technicians.

Don is also a member of NICET's Highway Traffic Operations Exam Committee. He is employed by MDOT in their Kalamazoo District Office.

Congratulations Don! We know you'll do a fine job just as you have for our Michigan Section of ITE.

AWARD GOES TO MARV MISIAK



In appreciation for the work and extra effort that Marv Misiak has given for a better Vendor's Day, he was presented with this plaque at the dinner after the Product Technical Session. The shiny floor and cleanliness of the area was no accident. Thanks Marv for all the things you do to make the day a success.

GRAMMA & GRAMPA K.

Tom and Annette Krycinski became proud grandparents with the birth of Thomas Ray Krycinski on Tuesday, April 17, 1984. Young Mr. Krycinski weighed in at 8 lbs. 15 ozs. Congratulations to mom and dad; Michelle and Tom and to Grandpa Tom and Grandma Annette.

We Get Letters . . .

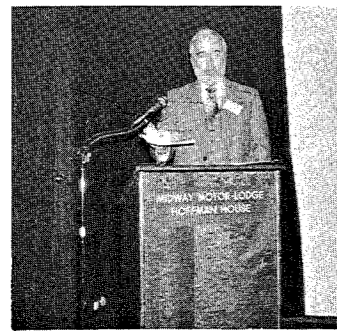
The two reprints from Car and Driver in the spring 1984 Michiganite on the subject "The 55 National Maximum Speed Limit" were the most interesting and provocative reading I have enjoyed in quite some time. Maybe it was because I could relate to and agree with many of the statements that were expressed. Several months ago, I too expressed my opinion that it is past time that the traffic engineering profession take up the issue of a national speed limit and try to make some sense of it rather than to rely on emotionalism. I was disappointed that very little response was given to that challenge. Perhaps it is easier just to let things go as they are--right or wrong--rather than to rock the boat. There may still be some interest on the part of the Michigan Section to pursue this question further since I noticed at least one of the Michiganite readers did express "its about time ITE did an objective study in Michigan-it would make a great technical project."

By: Maurice E. Witteveen, Engineer of Traffic and Safety

MARCH TECHNICAL SESSION — LANSING

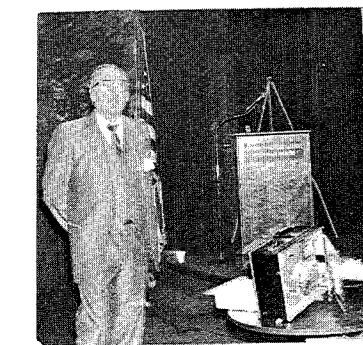
The March Technical Session, which was held at the Midway Motor Lodge in the city of Lansing, attracted over 70 participants including three student members from Michigan State University. The host, Glen Eteiamaki, provided excellent accommodations for the technical session as well as atmosphere during the buffet lunch.

The first speaker, Mr. Maurice E. Witteveen, Engineer of Traffic and Safety, Michigan Department of Transportation, (MDOT) outlined how the Federal Highway Administration committee on the Manual of Uniform Traffic Control Devices determines if changes will be made to the National Manual. Mr. Witteveen then presented a short film on Michigan's operation of protected/permissive left-turn phasing, and compared this to the policy in the National Manual. Presently, MDOT's use of this operation is in direct conflict with the National Manual. Mr. Witteveen indicated he has made a presentation to the National Committee on Uniform Traffic Control Devices in an attempt to get their approval of MDOT's operation.



The new sign and signal certification course was discussed by Dave Bacon, an Engineer with Carrier and Gable, Inc. Workshops throughout the state have been arranged where training is available for certification of individuals working on the new signal equipment.

Next, Paul Carrier, with Carrier and Gable, Inc., presented films showing the development of impact attenuators including the latest state of the art in this field. The newest system available is the SENTRE system which has been developed to be used in conjunction with guardrail endings.



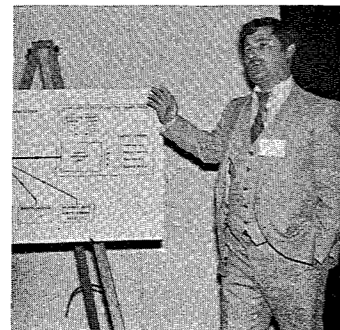
After lunch, John Antrim, a Professional Engineer, employed by the National Institute for Certification in Engineering Technologies, discussed the status of technician certification in the United States. His slide presentation summed up requirements needed to obtain this certification.

Then, Robert Maki, an Engineer with Michigan Department of Transportation, explained some of the research projects that MSU has been contracted to review. This research includes updating projects such as, MIDAS, MALI, and MARS. Mr. Maki explained how close contact is maintained with MSU and the procedures used to keep these research programs producing results.

The second half of this presentation by Dr. Thomas Maleck, Assistant Professor at MSU, involved a series of graphs which showed the accident experience comparing small vehicles (1700 lbs.) versus large vehicles (4000 lbs.). Dr. Maleck's presentation repeatedly indicated that if an accident occurs, you are safer in a bigger, heavier vehicle.



Lastly, Frank Spica, an Engineer with MDOT discussed preferential icing as it applies to bridge deck surfaces. The MDOT has installed four detection devices on I-496 in the city of Lansing to determine if conditions are favorable for ice to form on bridge decks. So far, this experimental system has proven to be 90 percent accurate. Frank demonstrated the ease of monitoring the system by telephoning the computer located at the Testing and Research lab to get an update of conditions on the bridge decks at that moment.



The Technical Program chairman would like to thank all of the speakers who contributed to the success of this meeting. Tom Krycinski, Section President, as well as all attendees, wish to thank Glen Eteiamaki for hosting an excellent meeting.
By: Joseph L. Meszaros

Volvo's new car window sticker states, "We did our part... Please do yours." The picture shows a passenger buckling up!

FHWA PUBLISHES HANDBOOK ON COMPUTER MODELS FOR TRAFFIC OPERATIONS ANALYSIS

The travel time and energy efficiencies that can be realized through well timed signal systems have been demonstrated to be very significant. Yet the use of computer models for analyzing traffic operational problems and evaluating proposed improvements is one of the newest areas of the field of traffic engineering. Consequently, many practicing engineers are not familiar with the concept, use, application and/or the availability of these models.

In an attempt to address this problem, FHWA has prepared a report titled "Handbook of Computer Models for Traffic Operations Analysis." The objective of this effort is to inform the practicing traffic engineer of the computer models which are available for developing and evaluating practical, day-to-day, transportation management problems. This Handbook provides sufficient information to permit the reader to understand the practical applications of ten of the more significant models and to select those models which would be most beneficial considering the capability of available personnel and equipment. The ten models presented in detail are:

- SOAP (Intersection Optimization)
- TEXAS (Intersection Simulation)
- PASSER II 80 (Arterial Optimization)
- PASSER III (Diamond Interchange Optimization)
- SUB (Arterial Bus Simulation)
- TRANSYT-7F (Network Optimization)
- SIGOP III (Network Simulation)
- NETS IM (Network Simulation)
- PRIFRE (Freeway Simulation)
- FREQ3CP (Freeway Optimization)

To further assist the potential user, a Technical Appendix to the report has been prepared which describes in lesser detail some 104 traffic models. The Technical Appendix is intended to serve as a guide in selecting other models to assist with unique problems.

Copies of the report are available at a small charge from the U.S. Government Printing Office. Contact Morrie Hoevel (517-377-1842) of the FHWA Office in Lansing for additional information.
By Morrie Hoevel

"Lawyers: Persons who write a 10,000 word document and call it a brief"
By: Franz Kafka

IMSA SAGINAW TECH SESSION LARGEST EVER

An outstanding technical session was hosted by Jim Brown, City of Saginaw, at the Radisson Inn in Saginaw. There were 103 registered members and guests.

The session started out with Jerry Werle of the City of Saginaw's Community Information Office, who gave a presentation on "Public Relations and the Government Worker". Jerry, a very dynamic speaker, was enjoyed by all. Roger Walther, Traffic Engineer for the City of Saginaw, gave a presentation on "Control or Not to Control". Saginaw has experienced severe layoffs. Roger told how he and other department heads weathered the storm. Jo Littleton, Office Manager for the City of Ann Arbor's Transportation Department, explained the system of computer use in the transportation field.

Lunch was served poolside at the Inn.

The afternoon session consisted of Controllers, Load Switches, Conflict Monitors and Terminal Facilities by Bill Murphy of Carrier & Gable, along with Harold Foster, retired.

The sign section consisted of Paul VanderHill of Sign Fast of North America Inc. on Construction Erection and Cost Advantages. Next was Construction Work Site Safety by Merv Teague of 3M and Products in Pavement Marking by Tim DeWitt, 3M. Jim Brown, our host, followed as a moderator for Information and Problem Exchange.

By Jack Hoving
IMSA-ITE Liaison

CANADA SHOWS THE WAY

New Brunswick has become the sixth Canadian province to make seat belt use mandatory (joining British Columbia, Saskatchewan, Ontario, Quebec and Newfoundland). Manitoba is expected to put similar legislation into effect Jan 1. Nova Scotia has a seat belt law on the books, but unfortunately it has never been proclaimed. By Don Wiertella

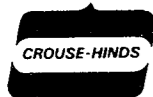
1984 MEETING SCHEDULE

Date	Location	Host	Event
June 14	Battle Creek	Ken Shackman	Tech. Session
July 27-28	Mt. Pleasant	Tim DeWitt	Tech./Family Weekend
September 14	Lowell	Grand Rapids	Golf Outing
September 23-27	San Francisco	National	Annual ITE Meeting
October 11-12	Dayton, Ohio	Bob Wert	District III Meeting
November 1	Frankenmuth	Roger Walther	Lunch Meeting
December 10	Pontiac	Rich Cunard	Annual Meeting

BIG BROTHER VISITS HONG KONG

In Hong Kong, the government is outfitting 5,000 vehicles it owns with electronic number plates which can be distinguished by a sensor imbedded in the roadway, same way that a computerized grocery checkout can tell a can of beans from a jar of pickles. If the system checks out, they probably will put a number plate on every vehicle, at \$50 per, and collect road-user taxes by sending everyone a monthly bill.

By: Donald R. Wiertella



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TWO CANDIDATES FOR

Editor's Note: Shortly, District III, Indiana, Ohio, West Virginia and Michigan will vote for a new District Director.



Richard F. Beaubien, P.E., is Transportation Director for the City of Troy, Michigan. Before beginning his employment with Troy in 1975, he was Chief Engineer for the Traffic Engineering consulting firm of Reid, Cool & Michalski. From 1968 to 1973 he was employed as a Highway Engineer with the Federal Highway Administration with assignments in Texas, California, Washington, D.C., Nevada, and Illinois.

His involvement with ITE includes service as Vice-Chairman of District III in 1983 and District III Technical Chairman in 1978. He is Past-President of the Michigan Section and currently serves as Department One Chairman on the ITE Technical Council.

His educational background includes Bachelor's and Master's Degrees in Civil Engineering from the University of Michigan. He is a registered professional engineer in Michigan, Illinois, and California.



CRASH CUSHIONS

Michigan uses several types of crash cushions dictated by the roadside environment and the type of roadside obstacle requiring protection. The four types shown on the attached pictures are the most commonly used crash cushions in Michigan.

The inertial barrier system, a group of sand filled barrels, is the most economically installed system, but it can be the most expensive to maintain. This system is usually installed at roadside obstacles too wide to be covered by the more compact units. Because a high-speed impact often destroys 60 percent or more of the system, and results in substantial debris, it is only used where the expected frequency of impacts is low.

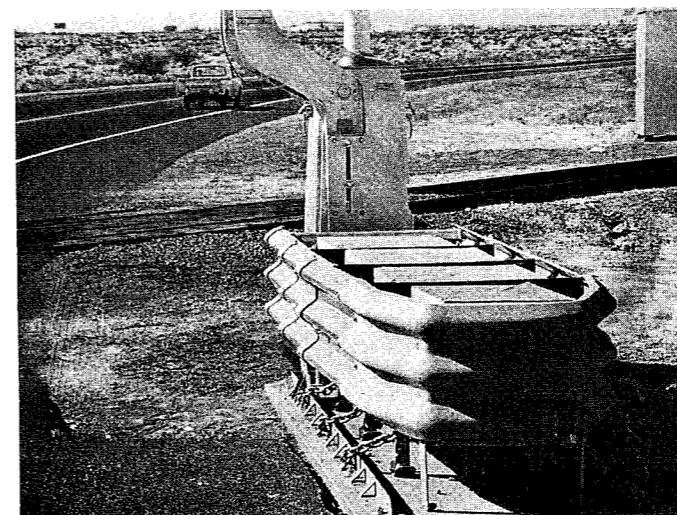
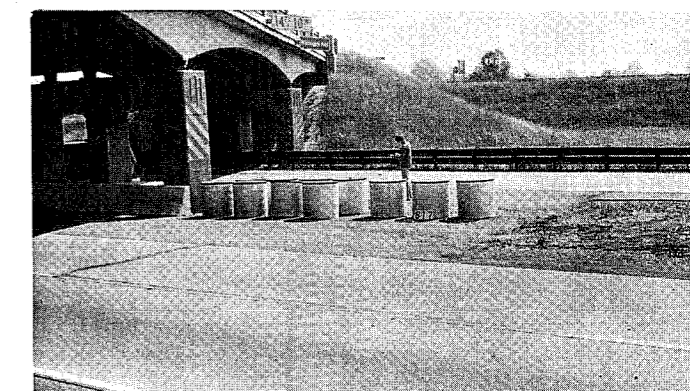
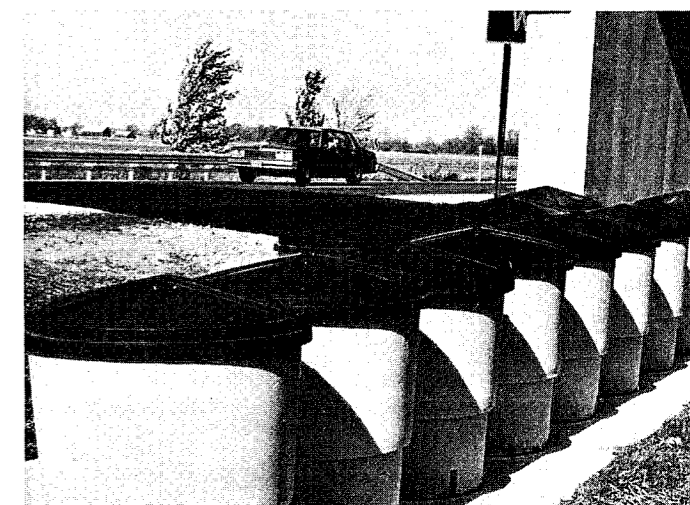
The HI-DRO Cell cluster system, a series of water-filled polyvinyl tubes wrapped with a flexible "belt", is designed for use at locations with speeds lower than 45 mph. With this type of system the impact energy is dissipated and absorbed through the controlled release of the water expelled from the polyvinyl tubes. The initial installation cost is relatively high; but when impacted, there is very little crash cushion debris, and quite often, over 90 percent of the unit is reusable.

A more sophisticated system, the HI-DRO cushion (sandwich) system is similar in operation to the hydrocell cluster. This cushion has molded fiberglass side panels in combination with steel cables strung laterally through the unit to provide vehicle redirection capabilities. These units are designed for use on high or low speed roadways, and because of low maintenance costs, are used at locations where frequent impacts are expected to occur.

The GREAT system (guardrail energy absorbing terminal) consists of crushable foam cartridges surrounded by a framework of triple corrugated steel guardrail. The impact energy is absorbed by crushing of the foam cartridges. The system also has vehicle redirection capabilities, can be installed on high or low speed roadways, and reacts favorably to smaller vehicles (less than 2,250 pounds) using our highways. An advantage in extremely cold areas is that the foam cells are not susceptible to freezing.

Prior to 1970, most crash cushions were installed in Michigan primarily on an experimental basis. However, the value of crash cushions has been proven and we now have approximately 245 installations on the trunkline system.

Well over 1,000 vehicle crash cushion impacts have been recorded with only two reported fatalities. It is estimated that crash cushions on Michigan highways have prevented more than a hundred fatalities and have eliminated or reduced the severity of hundreds of injuries.



AUTOMOTIVE NAVIGATIONAL SYSTEMS IN THE DEVELOPMENT STAGES

During a recent test-drive in a GM car with an operational navigational system, a member of ESD's Publications Committee found that although the system is high tech in design, it can be as easy to use as placing a cassette in a car stereo.

Today's motorist often must confirm his route while traveling by referring to a road map. However, looking at a map while driving creates a poor traffic safety situation. This situation is even more acute for drivers of emergency vehicles, who need to arrive at their destinations safely and swiftly. The solution to this problem could improve traffic flow, lessen driver fatigue and frustration and shorten the response time of emergency vehicles.

To address this problem, development engineers at the General Motors Technical Center and Delco Electronics division are utilizing advanced electronics and satellites to locate a vehicle's position anywhere on earth. The satellites are the U.S. government's new Navstar Global Positioning System (GPS) which will be fully developed and operational in late 1987. The Navstar satellites revolve around the earth at an altitude of 10,898 nautical miles and transmit precise and continuous navigation signals to any number of users over the entire globe.

The high altitude achieves worldwide, continuous 24-hour coverage with minimum signal distortion. Military tests conducted to date have confirmed the unprecedented accuracy and performance of GPS.

A prototype GPS receiver designed to acquire and sequentially track signals from four satellites is installed in a GM 1983 Buick Park Avenue. By means of geometric triangulation, the vehicle's precise latitude, longitude, and altitude are determined and displayed on a color cathode ray tube (CRT) in the car's instrument panel.

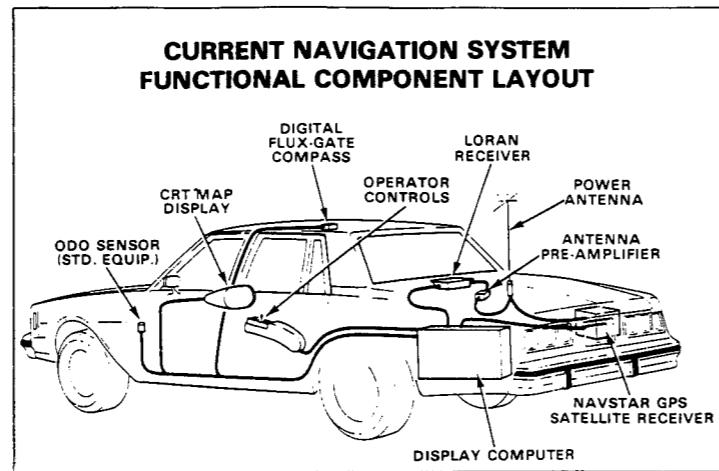
As the vehicle moves along the streets, the CRT screen shows the car's location on the map display. As the vehicle travels along the map's secondary roads, marked in yellow, or onto major freeways, marked in purple, the car appears on the screen as a small flashing rectangle leaving a blue trail. The edges of waterways are outlined in blue. The boundaries of different states are multi-colored.

The display also has an operator-selectable "trip planning" mode which allows the driver to pre-plan a trip by inserting origin, destination, and intermediate stopping points, all of which are displayed at the touch of a button. Relative bearing and distance to each stopping point are then displayed while enroute. Other driver controls include multiple map scales to enlarge, to increasing levels of detail, the streets and highways of a given area. The largest scale is automatically displayed when a destination point is approached within a 1½ mile radius.

The roadmaps are digitally stored in cartridges inserted in a slot in the car's instrument panel. The cartridges are changed as the vehicle travels from one remote area to another. Since a cartridge contains many map "pages", a new map is automatically drawn on the CRT as the vehicle, represented by the flashing rectangle, approaches the edge of the screen. The cartridges are programmed by digitizing U.S. Geological Survey maps.

GPS provides an indefinite number of users with accurate, continuous, worldwide, all weather, 24-hour coverage. The GPS system is organized into three main segments: The Space Segment consisting of the satellites transmitting orbital position to user receivers on earth, the Control Segment consisting of ground based monitor and control stations to assure message integrity from each satellite on a daily basis; and the User Segment consisting of the indefinite number of passive receivers to receive the specially coded satellite signals.

When the system is fully deployed in the 1987-88 time frame, 18 Navstar satellites will be revolving about



the earth. They will be configured in six orbits so that any user set will be able to view at least four satellites simultaneously anywhere on earth at any time of the day or night. Because the orbital period is 12 hours, some satellites pass out of sight below the horizon as others rise to take their place.

GM's current test and demonstration vehicle is equipped with three navigation systems:

- * NAVSTAR Global Positioning System
- * LORAN-C
- * FLUX-GATE compass and odometer for dead reckoning

This test configuration permits the relative evaluation of three independent or integrated approaches. The five satellites currently deployed limit the navigation window to approximately 4 hours per day. LORAN-C is used during the remaining hours to demonstrate modern radio navigation in an automobile along with the integrated map display.

While there is no projected date for any of these systems to be available as a production option, General Motors Corporation is continuing to evaluate and develop the systems into practical and affordable navigational aids for the motorist of the future.
Reprint from Detroit Engineer

SAFETY SEAT FOR BOTH CARS AND PLANES

The Department of Transportation (DOT) has issued a notice of proposed rulemaking that would enable the parents of small children to use the same child safety seat for both automobiles and planes.

Under existing regulations, the Federal Aviation Administration (FAA) does not permit the use of child restraints certified by the National Highway Traffic Safety Administration (NHTSA) without a special FAA certification.

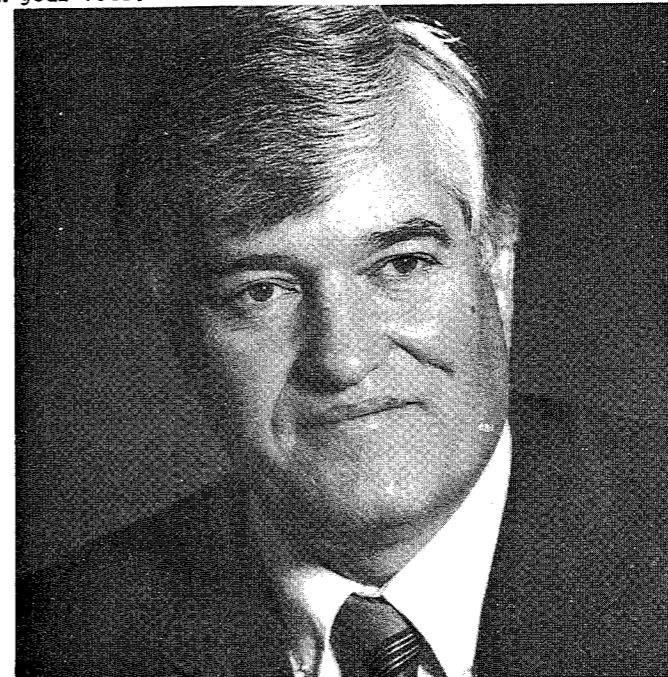
The proposed rule would combine Federal Motor Vehicle Safety Standard (FMVSS) 213, covering child restraints, and the FAA's rule, Technical Standard Order (TSO) C100, into a single standard.

"We believe this action will enhance child safety both in the air and on the highway," said Elizabeth Dole, Secretary of Transportation, in an announcement of the rulemaking notice.

About 1.5 million seats have been approved jointly by the FAA and NHTSA for both air and car transportation. They are the Cosco-Peterson Model 78 and Century Models 4100, 4200, 4300, and 4500, NHTSA said. Reprinted from Status Report

DISTRICT III DIRECTOR

There are two candidates, both from Michigan. Here are short biographies of each candidate to assist you in your vote.



Maurice E. Witteveen, P.E., is the Director of the Traffic and Safety Division for the Michigan Department of Transportation. He is a 1960 graduate of the University of Michigan and a 1967 graduate of the Yale University Bureau of Highway Traffic. His career spans 24 years with MDOT serving as Design Engineer, District Traffic Engineer, Chief of Materials Testing, and as Administrative Assistant to the MDOT Director prior to appointment to his current assignment in 1980. He is a registered professional engineer which he attained in 1964.

He has been active in several professional organizations including ITE, APWA, TRB, AASHTO and ASCE. Current responsibilities with ITE are as associate member of the ITE Delegation on the National Committee for Uniform Traffic Control Devices and a member of the Technical Advisory Committee developing a video-taped transportation engineering public relations program. Witteveen is also active with the AASHTO Traffic Engineering Subcommittee, AASHTO Standing Committee on Highway Traffic Safety, and various TRB activities.

SMALL SAVINGS MAY CAUSE LARGE LOSSES

The city of Duisburg (pop. 457,000), in West Germany's industrial heartland, found out recently that the game was not worth turning off the candle, so to speak. An energy conservation test conducted over a year-long period involved turning off traffic lights at 153 intersections between the hours of 11 p.m. and 5 a.m. The results were carefully monitored by the city both for cost reductions in energy use and impact on the number of accidents within the intersection perimeter. The surprising findings included:

- An \$18,000 savings in electricity;
- An estimated \$16,000 savings in fuel costs; and
- No appreciable impact on or complaints about traffic noise.

However, the number of intersection accidents during the monitoring period increased from 11 to 46 with a concomitant rise in costs from \$170,000 to \$583,000.
Reprinted from Urban Transportation Abroad Winter 1983.

NATIONAL ACCIDENT STATISTICS

Population.....	226 million
Registered vehicles.....	164 million
Licensed drivers.....	147 million
Miles driven.....	1½ trillion
Traffic accidents.....	18 million
Persons injured.....	3½ million
Vehicle users injured.....	2.6 million
Persons killed.....	49,300
Vehicle occupants killed..	40,400

Reprinted from National Highway Traffic Safety Administration

SEVERE INJURIES SUSTAINED IN MOTOR VEHICLE COLLISIONS

head and brain.....	33 %
spinal column.....	5 %
chest.....	27.5 %
abdomen.....	22.4 %
arm and legs.....	11.9 %
	100 %

Reprinted from National Highway Traffic Administration



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AUSTIN'S TRAFFIC SAFETY *cont.*

deaths down from 2,213 in 1973, and the lowest since 1945 when gas was rationed and speeds were reduced by World War II. Since 1973, deaths were nearly cut in half, while during the same period, 1 million additional drivers and 1 million additional vehicles have been added to our highways. The number of deaths per 100 million miles travelled was 3.8 in 1973, and preliminary figures for 1983 indicate an all-time low of 1.9. Seat belt use has risen from 8 percent in 1973 to 17 percent in 1983. When one considers the effects of traffic accidents, the trauma, costs, pain and hardship, it is amazing what our progress has meant for many in Michigan.

This progress closely parallels the State Safety Commission's interest in the following issues highlighted in 1983.

SAFETY BELT LEGISLATION

The top legislative priority for the Commission again in 1983 was enactment of a law to require safety belt use for front seat occupants. In February, 1983, Representative David C. Hollister introduced House Bill 4203 with this intent. Through the activities of the Michigan Coalition for Safety Belt Use, 1983 marked vast and extensive undertakings to gain public and legislative support. Sixty-nine newspapers throughout the state have editorially endorsed the measure. Public opinion polls continue to indicate public acceptance of a statewide law and those surveyed indicate they will comply with a law. Based on State Police data, safety belt use increased from 11 percent in 1982 to 17 percent in 1983.

The final months of 1983 sparked added interest in this subject for several reasons. The National Highway Traffic Safety Administration conducted hearings on FMVSS 208 dealing with the decade-long airbag and passive restraint versus active restraint or seat belt debate. Several officials from Michigan testified at the hearings. The passive restraint issue is a serious factor for Michigan's rebounding auto industry. If the federal government mandates an airbag requirement, researchers at the University of Michigan has concluded that 60,000 to 200,000 jobs would be lost in the automotive and related industries. It is estimated that the price increase of airbag equipped cars would negatively impact car sales with a \$400 to as much as \$1,000 increase in the sticker price. Michigan's economy, now showing signs of recovery, would be affected more than other states because of its close automotive employment affiliation.

Also in 1983, Michigan Congressman John Dingell introduced H.R. 4175 to offer incentive grants to states seeking passage of seat belt laws. In the first year of the incentive awards, Michigan would have the potential of receiving \$500,000 to promote safety belt educational activities.

During 1984, Michigan must enact a safety belt use law now to halt the carnage and certainly by April in order to influence the national debate on Standard 208. A greater effort should be made to promote safety belt use with non-governmental agencies that have employee-use policies. Also, state agencies should encourage greater compliance with safety belt use policies.

CHILD RESTRAINTS

The child restraint law, Public Act 117 of 1981, became effective on April 1, 1982. The first 12 months of the new law resulted in a 27 percent reduction in casualties for the 0-4 age group. The value of this law in protecting America's most precious human resource, the reduced pain and suffering, and resultant medical costs, cannot be overstated.

When Public Act 117 became effective, an overriding concern was the availability of child restraints, particularly for indigent families. By the end of 1983, child restraint rental programs existed in 73 of Michigan's 83 counties with approximately 15,000 restraints available

on a loan/rental basis. This is a tremendous source of pride when one recognizes the spirit of cooperation that has been fostered between volunteer organizations and civic groups, medical and health care organizations and governmental agencies in order to afford young children a safe ride.

At its April, 1983 meeting in Detroit, the Commission observed the first anniversary of the child restraint law. The contributions of six organizations and groups were recognized for seeking passage of Public Act 117, promoting child restraint rental programs, and promoting public awareness of the new law. These included the American Academy of Pediatrics - Michigan Chapter, Automobile Club of Michigan, League General Insurance, Michigan Child Passenger Safety Association, Michigan Jaycee Auxiliary and the Traffic Safety Association of Michigan. The Commission recognized that many groups and organizations helped to achieve success with the law, in addition to those receiving formal recognition, and is indebted for their generosity and leadership.

Despite increased use of child restraints, State Police have reported a 44 percent usage rate for the first 12 months of the child restraint law. This information is based on accident reports. There is no telling how many children have suffered no injuries and/or are alive today because a restraint protected them from a sudden stop or near collision which would not require an accident report.

ALCOHOL COUNTERMEASURES

1983 marked the second year of greater public awareness to combat drunk driving through citizen activism and legislative reform. This was further reinforced by the implementation of Public Acts 309, 310 and 311 of 1982, which became effective on April 1, 1983, and the creation of Governor Blanchard's Drunk Driving Task Force. The latter has involved numerous representation from both public and private sectors in its quest to review the entire issue of alcohol and highway safety and for developing effective recommendations.

Despite fewer enforcement personnel, the new legislation assisted in increasing OUIL arrests. They were increased by approximately 18 percent in 1983. A preliminary report from the Drunk Driving Task Force is expected in early 1984. Sobriety checklanes is the subject of hearings throughout the state and is one of the key issues to be included in the report.

55 MPH SPEED LIMIT

The 55 mph speed limit continues to be a source of debate in many states. In some cases, legislation has been introduced to repeal the law and return the maximum speed limit to 70 mph. Since Michigan enacted legislation in 1974 to reduce the maximum speed limit to 55 mph, it has been cited as one of several factors contributing to declining traffic deaths and injuries.

To some extent, motorist compliance with the 55 mph speed limit is contingent on enforcement efforts and motorist observance of acceptable laws. State Police enforcement arrests in 1983 increased by 10.5 percent. Continued compliance with the 55 mph speed limit is important for motorist welfare as well as the potential for jeopardizing federal funding. In this regard, greater public information efforts to urge compliance are needed, and where economically possible, greater enforcement efforts.

MOTORCYCLE HELMETS

Michigan is one of the few states that has retained its motorcycle helmet law since passage in 1970. This law contributes to reduced deaths and injuries and their attendant social and economic costs.

EXPERIMENTAL IMPACT ATTENUATOR PROJECT RESULTS IN FAVORABLE ACCIDENT STATISTICS

A "water wall" impact attenuator, installed by the Michigan Department of Transportation (MDOT) to protect motorists at a sharp curve on a busy Detroit freeway, has led to a dramatic decrease in reported accidents and injuries. During the 19 months the attenuator has been in operation, the MDOT has received accident reports on just two hits, though the wall shows evidence of several dozen collisions.

The MDOT, in conjunction with the Federal Highway Administration (FHWA), installed the water wall in an attempt to upgrade roadside safety at the site. Prior to the attenuator's installation, the curve was recording a higher-than-average accident rate. The FHWA is closely monitoring the water wall's performance to determine its potential as an effective safety device in other locations where frequent accidents have been recorded. The attenuator is on the southbound lane of I-375 (Chrysler Freeway), which curves sharply as it enters downtown Detroit and becomes Jefferson Avenue. According to an MDOT official, the curve is much sharper than it appears to motorists, who must quickly decelerate from 55 mph to the posted city limit of 35 mph.

The section of highway had been protected by steel beam guardrail. Because large sections frequently had to be replaced after an impact, Wayne County, who performs the maintenance, faced high repair costs.

In addition to the need for providing a safer highway, decreased maintenance was a major objective considered by MDOT in its decision to install the water wall. Traffic and Safety Division officials, the FHWA and engineers from Energy Absorption Systems, Inc., Chicago, an attenuator manufacturer, examined methods that had been used in similar situations. Continued use of guardrail would result in low installation costs, but replacement parts would add to the Wayne County road maintenance budget.

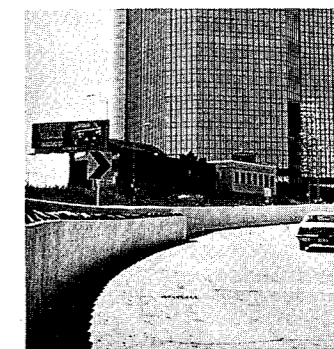
The 398-foot-long water wall, designed for the site by Energy Absorption Systems, is essentially self-restoring. It consists of a series of overlapping fender panels. Behind the 3-foot-high panels are a series of interconnected lightweight, durable vinyl tubes, which are filled with an antifreeze solution. The entire device is bolted to a concrete backup wall.

When a vehicle hits the wall, the cushion absorbs the energy of the impact by transferring the liquid through orifices that control the release of fluid into the upper, empty part of the cartridges. This allows the impact vehicle to be safely cushioned and redirected away from the obstacle. Since installation, the attenuator wall has met the safety expectations of MDOT Traffic and Safety Division in reducing injuries and fatalities. Wayne County maintenance crews periodically inspect the unit for damage due to unreported impacts, many of which happen at night.

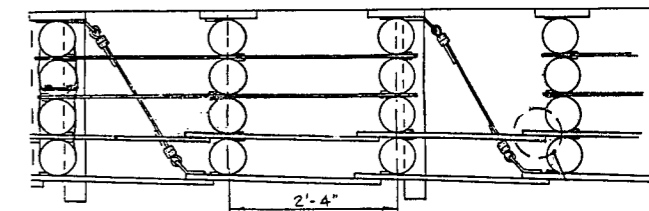
Curve entering Jefferson Avenue, originally protected with steel-beam guardrail, reported a higher-than-average accident rate.



Guardrail was replaced with an energy-absorbing impact attenuator in August 1982 with FHWA funds earmarked for safety-upgrade research projects. The FHWA is monitoring the water wall's performance to determine its feasibility in protecting similar high-accident locations.



The water wall extends for 398 feet along the curve. During its first 18 months in operation, it has met the safety expectations of both the Michigan DOT and the FHWA.



The water wall consists of overlapping fender panels. Behind the panels are a series of interconnected vinyl cartridges filled with antifreeze. The entire device is bolted to a concrete backup wall and anchored with cables.

CITY TO IMPOUND CARS USED BY DRUNK DRIVERS

The City of Anchorage, Alaska, has adopted an ordinance that would permit judges to impound vehicles driven by persons convicted of driving under the influence of alcohol.

The city statute also would allow judges to order convicted drivers to forfeit their cars permanently if they have been convicted of the same offense within the previous five years.

The impoundment provisions allow judges to seize vehicles for 30 days for a first conviction, 60 days for two prior convictions or a conviction of refusal to

submit to a blood test, and 90 days if there have been three prior convictions within five years.

Municipal prosecutor Allen M. Bailey said the ordinance will protect vehicle owners who were not involved in a drunk-driving incident as well as banks and credit unions who may be holders of notes for which the vehicle is security.

"The initial problem we anticipate in enforcing this ordinance is difficulty in convincing judges to actually make use of the procedure and forfeit motor vehicles driven by drunk drivers," said Bailey. Reprinted from Status Report

Ed Swanson

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SPLIT, CYCLE LENGTH AND DELAY AT SIGNALS

The delay for a vehicle at a signalized intersection is defined as the extra time required to travel through the intersection over and above the time it would have taken if its progress had not been impeded by the signal or by other traffic.

Here are a couple of approximate formulas for the delay to through traffic on an approach to an isolated pre-timed signal with cycle length 'C' and with left turn lanes. The first is for light traffic on the approach (only one or two cars per cycle):

$$\text{average delay} = \frac{r^2}{2C} \quad (\text{light traffic})$$

where r is the length of the red light for the approach. This is because a fraction r/C vehicles are caught by the red and stop, and these must wait an average of half a red time for the light to turn green. The product of r/C and r/2 is the average delay.

If traffic is heavy, but not oversaturated, on the approach (almost all the green time is taken up by vehicles or traffic is at about 70% of capacity) then

$$\text{average delay} = \frac{r}{2} \quad (\text{heavy traffic})$$

This is because the vehicle that arrives just after the signal turns red must wait a red time 'r', but a vehicle that arrives moments before enters on the yellow and has no delay at all. Delay to other vehicles, including those that arrive on green, varies linearly between 0 and r, so the average delay is r/2. (If traffic is heavier than 70% of capacity, random effects will cause delay to increase above this estimate.)

Usually, of course, traffic is neither light nor heavy. The delay for moderate traffic is between the values given by these two equations. More precise estimates for delay in moderate traffic are not as easy to derive, but it will be at least as much as for light traffic and less than for heavy traffic. This information should usually be sufficient.

These formulas also tell us something about cycle length and delay. Suppose the split, r/C, is constant, and the cycle length is at least long enough to serve all approaching traffic. Then, if we express delay in terms of the split r/C, and if traffic is light,

$$\text{delay} = \left(\frac{r^2}{2C}\right) \left(\frac{C}{C}\right) = \frac{C}{2} \left(\frac{r}{C}\right)^2, \quad (\text{light traffic})$$

and if traffic is heavy,

$$\text{delay} = \left(\frac{r}{2}\right) \left(\frac{C}{C}\right) = \frac{C}{2} \left(\frac{r}{C}\right). \quad (\text{heavy traffic})$$

In both cases, since r/C is a constant, delay increases directly with the cycle length C, above some reasonable minimum cycle length. This is the major reason that cycle lengths should be kept short.

By: Bob Shanteau

MORE NEW CARS WITH WEAKER BUMPERS

Only about 40 percent of the 1984 cars rolling off assembly lines are equipped with bumpers strong enough to withstand a 5 mph impact, the Center for Auto Safety has reported.

This is a 10 percent drop from the previous model year, the Center said.

Although automakers promised \$30 to \$40 savings in new car prices when the government lowered the bumper standard from 5 to 2.5 mph in mid-1982, none has materialized. But repair costs have soared for newer cars with 2.5 mph bumpers.

SMALL VEHICLES AND SAFETY

Thomas Reel of the Michigan Association for Traffic Safety discussed the "Effects of Small Vehicles on Traffic Safety." While researching this subject, Mr. Reel discovered that the latest literature reached widely conflicting conclusions.

According to an Institute for Highway Safety Report, deaths in accidents involving subcompact and compact cars occur about twice as often as in larger cars. The reason for this phenomenon is unclear.

The Institute for Highway Safety Report concluded that the injury and death rate for small cars would not decrease substantially even if all cars were small. Some other experts agree that the danger is largely

attributable to the car itself and not to the vehicle size-mix or the roadway environment.

Another report concluded that the accident severity associated with small cars was due in large part to the roadway environment. Still another reasoned that the small car accident problems were attributable to the driver. The drivers with the worst accident records, ages 16 through 25, are the principal drivers of small cars.

Mr. Reel urged the traffic safety community to obtain more data to address this problem so that efforts can be directed toward appropriate countermeasures to reduce the small car accident problem. By Mike Krause

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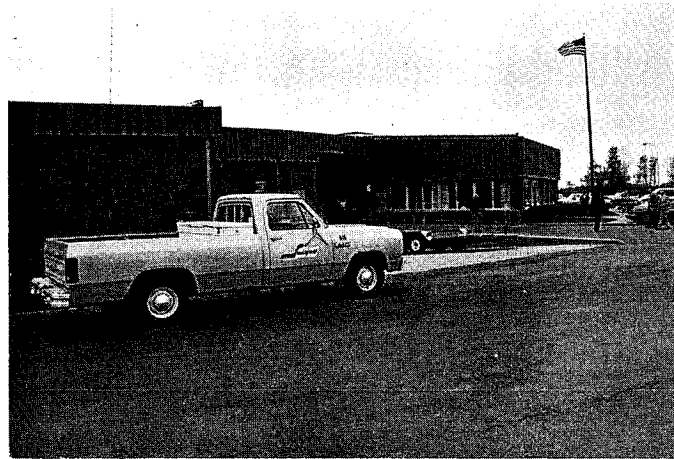
Thanks to you, the members, the vendors and the city of Southfield, the ITE-IMSMA-MPA Product Technical Session held on May 17, 1984 at the Southfield DPS Garage was bigger and better than ever before.

As an indication of this, the attendance figures for the past three years are as follows:

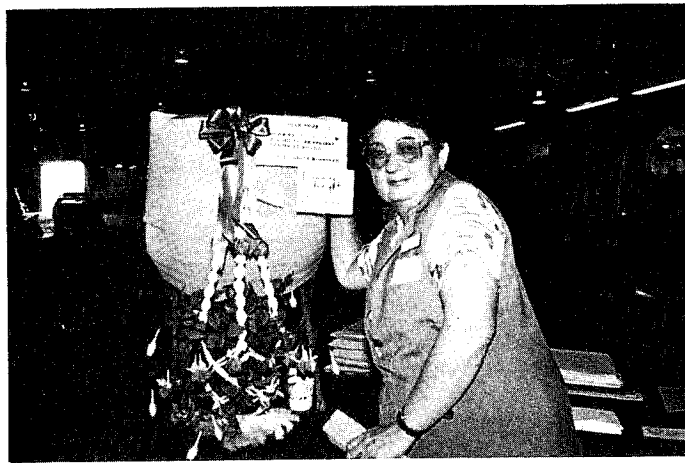
	1982	1983	1984
Number of Displays	15	21	23
Attendance	111	132	171

Special thanks again goes to our Southfield hosts for permitting us to use their fine facility. Vicki Hall handled the registration table superbly; and Bob Northrup and Marv Misiak again did everything they could to take care of our needs. For those of us who noticed better lighting this year, we can thank John Yontz of the city of Dearborn for the temporary installation.

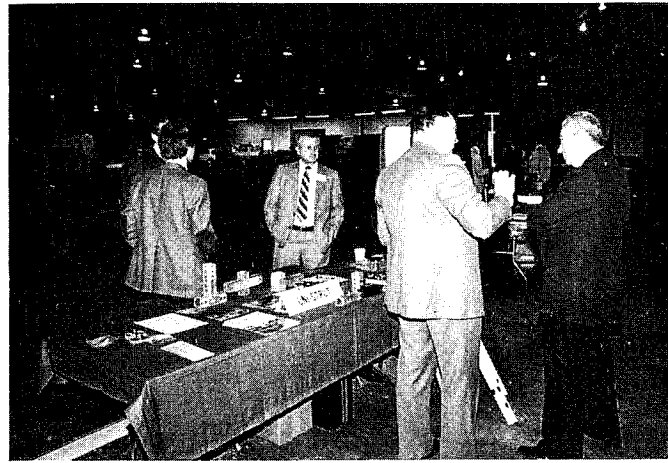
The hospitality committee headed by Jerry Carrier and Herb Henry made arrangements for dinner afterwards at "Copperfields" in AMC World Headquarters.



The home of the Product Technical Session, the City of Southfield's DPW Garage



GRAND PRIZE Grace Morehead (Indicator Controls) donated a macrame plant handing for a drawing at dinner. The winner was Mike Labadie of Professional Engineering Association



UNISTRUT George Wisman, Herb Henry and Bob Richardson talking with Walt Roth of MDOT's Jackson District Office



Past President, Bob DeCorte, immediately after being caught eating all the goldfish in the DPW office aquarium.

TRAFFIC SAFETY

Oakland County recorded the fewest traffic deaths in 21 years in 1983. There were 111 traffic deaths reported last year, a 26.5% reduction compared to the '82 toll of 151.

The last year in which fewer traffic deaths were recorded was in 1961 when the traffic toll in Oakland County stood at 108.

The mileage death rate (number of persons killed for every 100 million vehicle miles traveled) in '83 is remarkably low when one considers that there has been an estimated 85% increase in the annual rate of miles traveled since 1961. As the accompanying chart shows, if Oakland County traffic deaths had followed miles traveled since 1966, we would now be reporting 255 fatalities for '83 instead of 111 - 144 people alive and well who wouldn't otherwise be! It's an outstanding example of the results of a total team effort.

In examining traffic accident reports, TIA staff observed a couple of particularly significant changes: Pedestrian and motorcycle fatalities were down considerably - 41% and 53% respectively.

Authorities generally agree that the overall trend toward a decreasing mileage death rate is due to a number of factors such as improvements in vehicle safety engineering, law enforcement, traffic engineering and emergency medical services.

There are a lot of scientific research data which support the safety contributions in each of these areas. Certainly the traffic engineering improvements which were implemented through the pioneering Highway Risk Management Program of the Oakland County Road Commission (adopted in 1977) have had a measurable impact. Roads under the jurisdiction of the commission had a record low of 46 fatal accidents last year. They've been declining ever since a high of 77 fatal accidents in 1978.

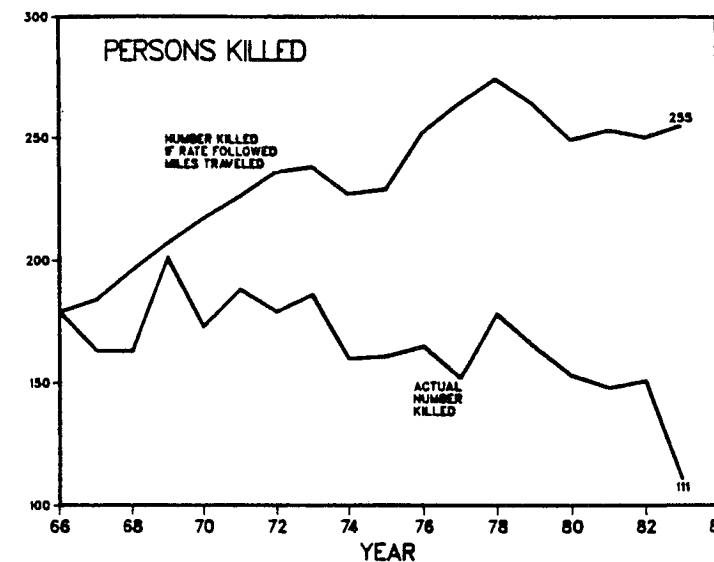
Recent statements of leading officials from Washington and Lansing attribute the dramatic reductions of the last year or so primarily to stepped up drunk driving countermeasures. TIA data suggests some validity in these views, for alcohol-related fatalities in designated Oakland County target areas patrolled by special alcohol enforcement teams were down 60% last year as compared to the two year period prior to 1980, when the countywide alcohol enforcement and education project was launched.

Of particular significance is the fact that the number of fatal accidents in '83 which involved alcohol was 33% less than in '82!

The 1983 traffic death figures reported here are provisional. Slight increases in the year end total may be anticipated due to reports of death that occurred after 1983 but which result from accidents which happened in that year.

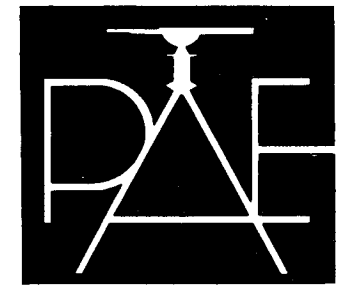
Reprint from TIA Traffic Review

OAKLAND COUNTY 1966 - 1983



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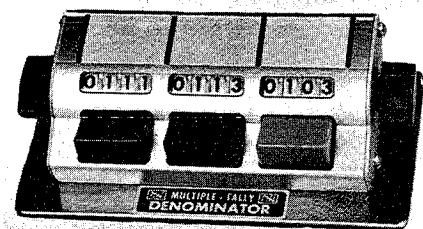
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While many traffic counts can be obtained by mechanical counters, for some types of count there has been no economical substitute developed for a hand count in which the individual assigned goes to the intersection and visually notes each car passing and then in some manner records this information.



The most primitive form of a hand count is to use the so-called "lumber tally," which is the old technique of using four hash marks for the first four objects to be counted and then a slash line across the four lines for the fifth so as to simplify addition when the count is completed. However, since watching traffic and using a pencil on paper is difficult even under the best conditions (and a real trial under windy and rainy conditions), the use of a hand counter is a definite improvement on the pencil and paper technique. Considerable attention has been given to the design of hand counters mounted on counting boards that give a good deal of aid to the use and improve the accuracy of the counts.

Tally counters, each corresponding to one of the traffic movements, are mounted on convenient shaped and sized count boards. By reading each counter at the end of certain time periods, total volumes per move per period of time can be determined. The photograph shows a tally counter manufactured by the Denominator Company of Woodbury, Connecticut (203 263 3210). This is a particularly convenient type of counter for field use.

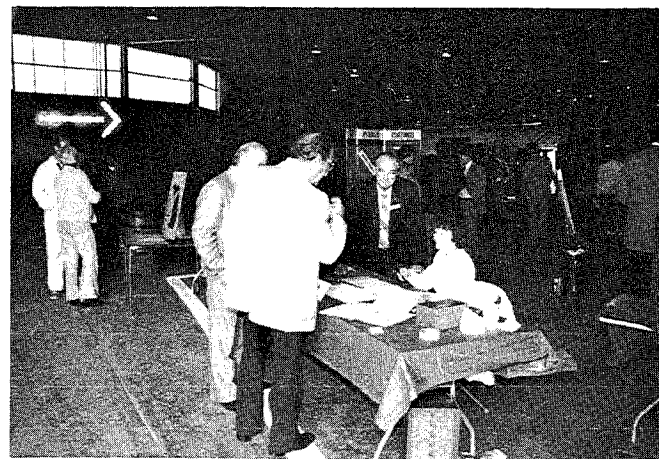
Tally counters can also be ordered with a "totalizer" at the extreme right of each horizontal row of counters, and this can be a worthwhile investment in time-saving. Actually, the possible arrangements of counters are almost limitless, and it becomes a matter of personal preference and counting requirements. Tally manufacturers can sometimes mount the counters to specification at modest cost.

Both the tally-sheet and count-board methods are expensive in man-power because they require the services of several people for about twelve hours in order to get anything close to complete information at an intersection. It is not usually possible for an individual to maintain accurate counts for long periods of time. For reasonable accuracy, each person on counting duty should be relieved for fifteen minutes each hour. At very heavily trafficked to complex intersections, it may be necessary to have two or more people counting simultaneously; each recording only a few of the total traffic flows if reasonable accuracy is to be maintained, because it is not possible for a person to count simultaneously more than a few heavy movements of traffic.

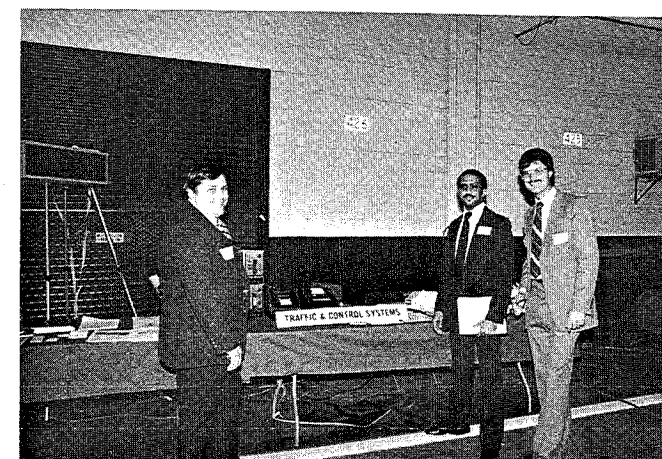
In order to detect any large discrepancy in manual counts, it is a good idea to have at least one of the approaches (and preferably more than one) counted by "road tube" counters at the same time. While it is difficult, unless the streets are thoroughly channelized, to get a breakdown on the turn movements with "road tube" counters, a comparison of the respective totals of the "road tube" and hand counts will give a good indication of whether the hand counts are accurate.

By: Don Wiertella

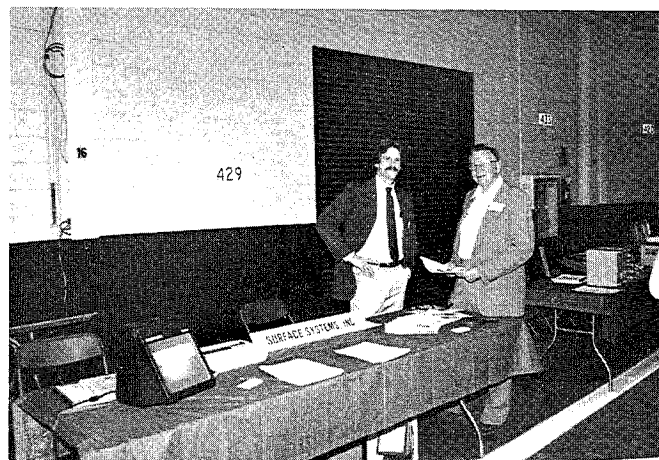
VENDORS' DAY . . .



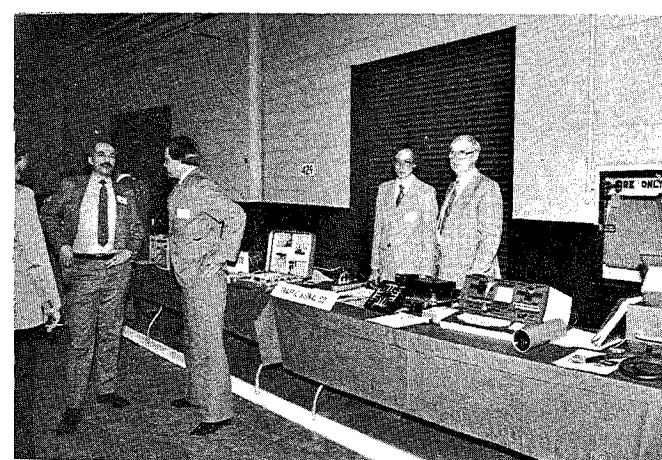
Marv Misiak & Vicki Hall handle the registration desk chores. Hi-Vu's battery operated target arrow in background



TRAFFIC & SAFETY CONTROL SYSTEMS Marv Prater and Keith Hay discuss their diversity of product with Sylvester Payne of the City of Saginaw



SURFACE SYSTEMS INC. Ric Kremer discusses ice detection equipment with Wendell Blikken (MDOT-SCANDI)



TRAFFIC SIGNAL CO. Tad Dickerson and Del Kloeker oversee as David Haver has discussion with 3M's Ted Colangelo

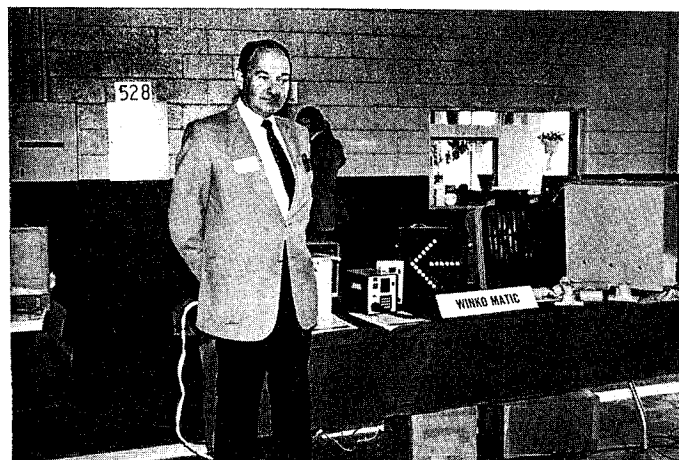
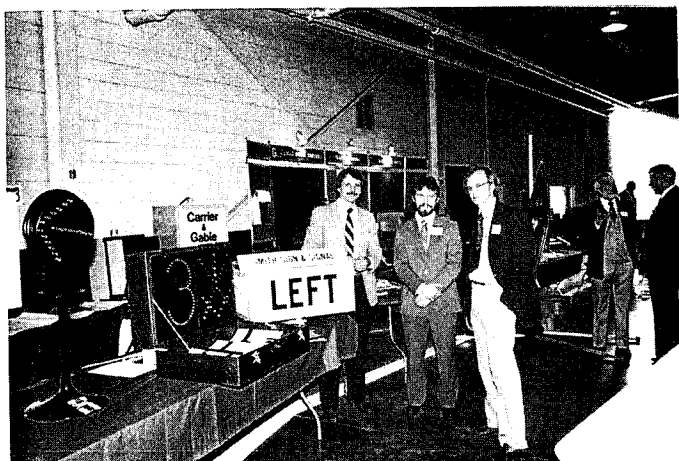


U.S. STANDARD SIGN Grace Howard and Evalyn Wagner show signs and polyplate materials to Art Cuendet (Ann Arbor) and Marv Misiak (Southfield)



3M-SECURITY Dave Hawkins uses hard-sell techniques on Linda Schultz and Mike Labadie

VENDORS' DAY...



SMITH SIGN & SIGNAL Tom Seaver and Jim Livingston explain fiber optics to MDOT's Joe Meszaros

WINKO MATIC Howard Seligson displays Fiber Optics, T.B.C.'s, pedestrian signals and controllers



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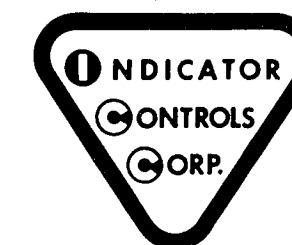
Highway Construction
Products Department
Traffic Control Materials Division/3M

223-3N 3M Center
St. Paul, Minnesota 55144
612/733 0377



CARRIER & GABLE ENERGY ABSORPTION - PRISMO UNIVERSAL Carrier & Gable's Dave Bacon shows some of the many products on display

PATH MASTER Cliff Connelly displays traffic control equipment in front of the Multisonic Motor Home

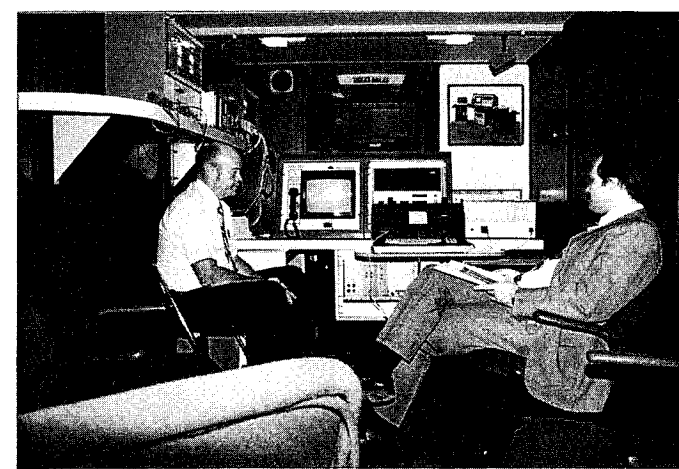
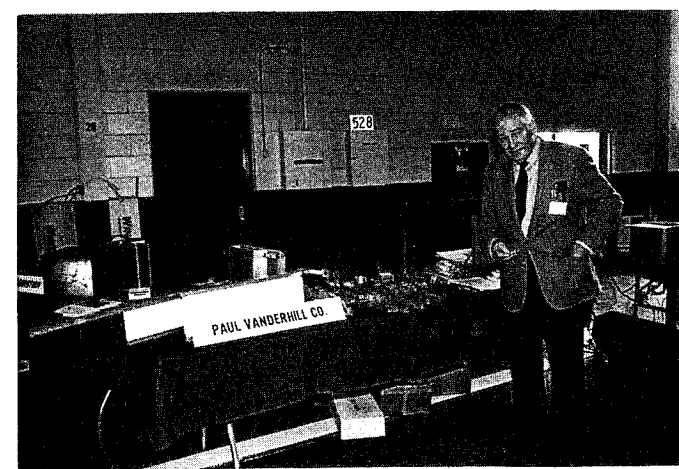


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PAUL VANDERHILL CO. Information on Sign-Fix was dispensed by the affable Paul Vanderhill

PATH MASTER Inside the Multisonic Motor Home Jim Conner discusses computerized signal control with Dave Berridge of the City of Lansing

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TENTH INTERNATIONAL FORUM ON TRAFFIC RECORDS SYSTEM

Ted Dudzik of the National Safety Council has just released a preliminary fact sheet for the 10th Traffic Records Forum to be held August 20-23, 1984 at the Americana Dutch Resort Hotel in Lake Buena Vista, Florida. This forum is designed to provide guidance in the use and application of traffic records systems to improve traffic safety and is an annual event.

There will be workshops on data collection needs in the area of alcohol countermeasures, police traffic services, emergency medical services, highway construction safety and occupant restraints, just to mention a few. Some topics already selected to be covered are advancements in the use of traffic records for urban and rural applications, 55 MPH and the relationship between speed and safety, twin trailer exposure data collection, microcomputer applications, driver license compacts, national driver register update, odometer spinning, and the Federal Highway Administration's highway performance monitoring system. It is estimated that some 400 persons will attend the forum with representation including traffic records specialists, traffic engineers, training directors, police professionals, emergency medical services personnel, federal government officials, local/county/state officials, and experts from other professional/service organizations.

Sponsors of the forum besides the National Safety Council's Traffic Records Committee include the National Highway Traffic Administration, the Federal Highway Administration, the American Association of Motor Vehicle Administrators, the Transportation Research Board's Committee on Traffic Records, the National Association of Governors' Highway Safety Representatives, the International Association of Chiefs of Police, our International Institute of Transportation Engineers, the Central Florida Safety Council, and the American Association of State Highway and Transportation Officials.

It's a great place to "rub elbows" with experts in the area of traffic records and more information on the forum can be obtained by contacting Ted as follows:

Ted E. Dudzik
National Safety Council
444 N. Michigan Avenue
Chicago, IL 60611
Phone (312) 527-3800, ext. 238

HOW ABOUT THE MORNING AFTER?

Everyone knows that drinking and driving don't mix, but its safe to drive the next day after sleeping it off, right? Wrong.

Hans Laurell and Jan Tornros of Sweden's National Road and Traffic Institute, found that hangovers significantly reduced driving ability. The researchers threw a party and served 22 volunteers appetizers and dinner accompanied by beer, wine and punch. The volunteers slept in the lab, and after breakfast their driving ability was measured. They drove on a closed course lined with two rows of pylons. Their ability to drive was based on the number of pylons they knocked over and their ability to stop. Nineteen of the subjects scored worse when hung over than under normal conditions. While hung over, drivers experienced an average 20 percent reduction in driving ability. Impairment in driving lasted three hours, until alcohol blood concentrations reached zero. "The results give clear evidence of the performance degrading effects of alcohol hangover," researchers said in their report, published in a recent edition of the Journal of the American Medical Association. The volunteer subjects also were unable to tell how hung over they were. Those who felt fine were just as likely to drive poorly as those who felt terrible.

Reprint from ITEMS (Illinois Section Newsletter)

NEW FORD MODEL BUMPERS SAVE ON REPAIR COSTS

American consumers were taken for a costly ride when the bumper standard was lowered to 2.5 mph, a Senate subcommittee hearing was told recently.

Citing a just-completed Insurance Institute for Highway Safety study, Ben Kelley, senior vice president of the organization said repair costs following a series of low-speed crash tests varied dramatically between an '84 Ford Tempo with a 5 mph bumper and an '83 Honda Accord with a 2.5 mph bumper.

"The total estimated repair costs for the Ford Tempo...were \$931," said Kelley. "Repair costs for the Honda Accord in the same series of tests were \$3,655, or almost four times as much as the Tempo's. For owners and prospective purchasers of Ford Tempos or Honda Accords, the message couldn't be clearer."

Senator Jack Danforth, chairman of the Subcommittee on Surface Transportation, chastised the National Highway Traffic Safety Administration for lowering the bumper standard from 5 mph to 2.5 mph, which made the greater loss possible.

"As a result [of NHTSA's actions] we've returned to the days when bumpers were just ornaments....It is clear the price reductions promised by the auto industry never materialized," said Danforth. "Second, the 2.5 mph bumpers provide virtually no damage protection."

Danforth also noted that while NHTSA may have had "doubts" about 5 mph bumpers, but at least one other who had to pay the price did not.

"One very important consumer," said Danforth, "has disagreed with NHTSA's decision. That consumer is our own federal government. The General Services Administration looked at the evidence and decided that it wants nothing to do with 2.5 mph bumpers. It has decided that all of the cars that it purchases during 1984 must be equipped with 5 mph bumpers."

Front-and Rear-End Crash Tests	
Damage Repair Costs*	
1984 Ford Tempo and 1983 Honda Accord	
1984 Tempo	1983 Accord
(5 mph bumpers)	(2.5 mph bumpers)
5 mph front-into-barrier	
\$ 0	\$ 305
5 mph front-into-angle-barrier	
\$309	\$ 916
10 mph front-into-barrier	
\$622	\$1,445
5 mph rear-into-barrier	
\$ 0	\$ 207
5 mph rear-into-pole	
\$ 0	\$ 782
Totals	
\$931	\$3,655

*Repair costs are based on July 1983 parts prices and a labor rate of \$17 per hour. Criteria for bumper facebar damage were adapted from the DOT part 581 Bumper Standard requirements in effect between September 1, 1979, and July 6, 1982. Reprinted from Status Report

Set
An
Example



VENDORS' DAY...



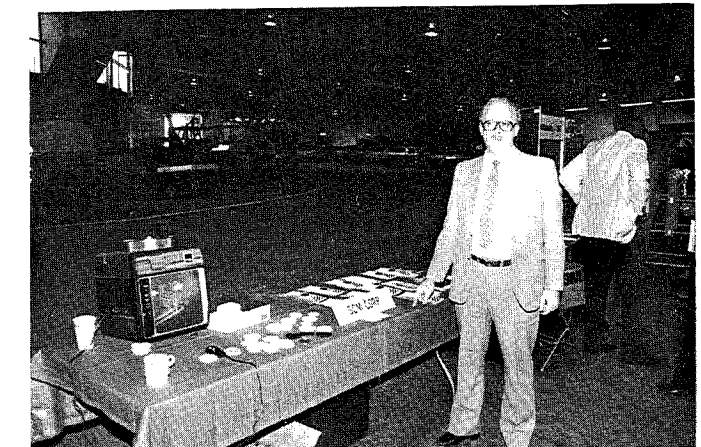
HOLMES ASSOCIATES Greg Roye, John Wellinger & Craig Strum extolling the virtues of Hydrozo Coatings



3M-PAVEMENT MARKING Tim DeWitt showing future buyers from Michigan State University marking tapes



ENERGY TOOL AND MACHINE CO. Keith Rodney and Hoksbergen with information on air tools and compressors



SCM CORPORATION Glidded Divisions Steve Pitcher with samples of long lasting polyester pavement marking materials



RATHCO SAFETY SUPPLY INC. Dan Thompson ready to show signs, maintaining traffic materials and installation equipment.

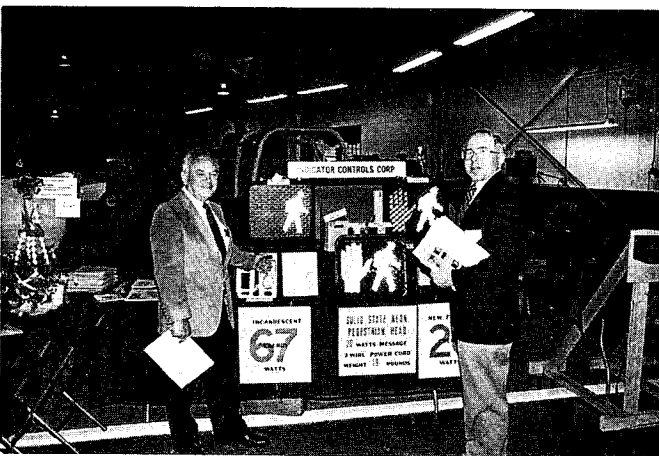


3M-REFLECTIVE MATERIALS Smiling Jack Mathiasen must have just sold some hi-intensity reflective sheeting

VENDORS' DAY...



MICHIGAN BARRICADING Sandy Hanes with signs, applicator and maintaining traffic materials



INDICATOR CONTROL CORP. Ted Morehead dispensing information on pedestrians indicators to FHWA Region V Traffic Engineer Martin Monahan



CINCINNATI TIME Bob Hey and Jack Whitmad discuss parking equipment with Martin Monahan (FHWA)

REMINDER

The ITE/MSA Family/Technical Weekend will soon be upon us, so make your reservations soon. This Holiday Inn in Mt. Pleasant is one of the finest locations in Michigan to host a family weekend. The facilities offer swimming, golf, tennis, racquetball, shuffleboard, game room and much much more. As usual, a continental style breakfast will be available each morning to begin your day and the Inn has guaranteed sunshine and loads of fun.

To make your reservations for July 27 & 28, call 1-800-238-8000 or the Inn directly at 517-772-2905. A block of rooms is being held for the event but are filling fast. Call now to guarantee your room and enjoy a weekend of relaxation and fun in the sun.
by Tim DeWitt

you can't have it!

Based on four different polls and surveys done between 1971 and 1980, the answer seems to be yes -- if air bags are available at a reasonable price in new-car showrooms.

And an even more recent survey of the American public conducted for the Insurance Institute for Highway Safety found that 41 percent would definitely or probably buy a car with air bags, even if they added as much as \$350 to the cost of the car.

The property/casualty insurance industry has studied air bags for a long time and believes they're well worth the cost. As standard equipment, air bags would add about 3 percent to the price of the average American car. The air bag is really a bargain when you consider the \$400 to \$700 that people routinely pay for automatic transmissions, air conditioning and even some stereo systems. These extras are nice, but they won't save your life as an air bag could.

Right now, Secretary of Transportation Elizabeth Dole, responding to a June 1983 Supreme Court directive, is reviewing possible safety requirements for all new cars.

The Transportation Department must decide whether air bags or automatic seat belts should be required or else provide sound justifications for not doing so.

Automatic seat belts would be an improvement over manual belts, which are used by only 25 percent of Americans when they are in the front seat of a car. But automatic seat belts don't protect occupants' necks, heads or faces from flying glass and other debris. Air bags, on the other hand, work only when needed and are only a small investment in an era when many fully equipped cars cost more than \$10,000.

The case for air cushions is a strong one and no argument is stronger than the tests that have been made starting in the mid-1970s. A product that works automatically, costs little, is highly reliable and will save thousands of lives and significantly reduce injuries will benefit the entire nation. By: Samuel Schiff, Assistant Director/Press Relations Insurance Information Institute

NEW INTERNATIONAL AFFILIATE MEMBERSHIP GRADE

In October of 1983 the International Institute's membership approved a constitutional amendment which initiated an Institute Affiliate membership grade. In that regard the following is a direct quote from a notice which I just received concerning this new grade:

"The Constitution as amended defines the requirements for Institute Affiliate as follows:

To be eligible for admission to the grade of Institute Affiliate, the applicant shall be a person who is not otherwise eligible for Institute membership or who may be accumulating experience towards Institute membership; and

- (a) is engaged in transportation or traffic engineering work; or
- (b) is in a related field who by virtue of stature or official position is in a position to contribute to the work of transportation professionals; or
- (c) is engaged in commerce or industry and comes into frequent contact with transportation and/or traffic engineers and who has an interest in the profession or is in a position to work with and assist transportation professionals;
- (d) and has been engaged in one or more of the above for a minimum of three years.

The International Board of Direction Procedures for the processing of Institute Affiliate applications are as follows:

- (1) The applicant submits to ITE Headquarters a completed Institute Affiliate application. Headquarters staff reviews the application to determine if it is filled out in full.
- (2) One copy of the application is sent to the District Membership Chairperson. Each application will have an attached postcard which the District Membership Chairperson will return to ITE Headquarters within 30 days. If no postcard is received by Headquarters within 30 days, the assumption is that the candidate is approved for Institute Affiliate Membership.
- (3) When the District card has been returned noting the District approval or disapproval, the applicant will be notified of acceptance or rejection to membership. Acceptance to membership is not effective until payment of applicable fees and dues is received.

The Institute Affiliate, for annual dues of \$40, will receive a subscription to the *ITE Journal* and will be able to obtain member discounts on the Institute's publications, professional development seminars and Annual Meeting registration."

The Institute's goal is to obtain at least 1,000 Institute Affiliate by December 31, 1984.

Membership forms are available and you may obtain one by contacting:

Mr. Gary Holben
Senior Program Specialist
Safety Programs Section
Office of Highway Safety Planning
Michigan Department of State Police
111 S. Capitol Avenue, Lower Level
Lansing, MI 48913
517/373-8011

By Thomas R. Krycinski, P.E., President

VIRGINIA DOT USES A SPECIAL MOUNTAIN PAVEMENT MARKING

The Virginia Department of Highways and Transportation uses a special type of center line marking on two-lane highways in mountainous areas known as "mountain pavement marking (MPM)." It consists of a single broken line supplemented with "PASS WITH CAUTION" signs. Passing is therefore not prohibited even at sections with inadequate sight distances. The driver is therefore solely responsible for deciding when to pass.

This practice of marking two lane highways has received some criticism in the past and Virginia, therefore, conducted a study to determine whether this marking system should be replaced by the MUTCD standard marking pattern. They also wanted to develop guidelines for minimum lengths of passing zones and minimum sight distances for safe passes on these roads.

Passing maneuvers were recorded at five sites using a 16mm movie camera. Relevant data was then extracted and used to develop a regression model for the minimum length of passing zone, based on the passing speed and the speed difference between the passing and impeding vehicle. A minimum passing sight distance was then developed using the concept of a critical position and comfortable deceleration. The results indicated that the minimum length of 400 feet for a passing zone specified by the MUTCD may not be adequate for passing vehicles to safely complete a pass even at a 30 MPH passing speed.

The study was done by Nicholas J. Garber and Mitsuru Saito of the University of Virginia, and the results were presented at the January 1984 TRB meeting in Washington. Reprinted from ATSA Signal. By Don Wiertella

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This could save your life, but . . .



BEST SOLUTION TO AUTO DEATHS AND INJURIES IS THE AIR BAG, SAYS I.I.I.

Death and injury usually accompany the clanging of metal and breaking of glass in a car crash. That's not news.

What is news occurs when the occupants of the cars involved walk away from an accident.

Impossible, you say. Wrong, says the Insurance Information Institute, an educational, fact-finding and communications organization for the property/casualty insurance business.

If all the cars on the road today were equipped with air bags or air cushions as they are also called, 9,000 lives could be saved -- and more than 50,000 major injuries could be avoided.

Those are figures based on a Department of Transportation study, said Mechlin D. Moore, president of the Institute. "The engineering skills of the U.S. auto industry," Moore said, "and its suppliers have made the air cushion system by far the most effective and thoroughly tested safety technology ever developed."

The Institute points out that there are three kinds of restraint systems -- manual seat belts, automatic seat belts and air cushions -- all of which substantially reduce the likelihood of crash injuries. However, the seat belts must be used and all too often the driver and passengers elect not to use them. A recent survey conducted by Louis Harris and Associates for the Insurance Information Institute showed that only one out of four Americans report always wearing a seat belt when in the front seat of a car, despite strong agreement that this should be done.

Air cushions on the other hand work automatically. Completely out of the way and out of sight until a frontal or front-angle crash occurs, air cushion systems inflate in less than 1/25th of a second and keep car occupants from slamming into steering wheels, instrument panels, windshields and windshield frames.

Air cushions are even more effective during the second collision -- sometimes called the human collision.

In a frontal crash, the vehicle is stopped abruptly by another vehicle or fixed object. But unrestrained vehicle occupants continue moving forward at the pre-crash speed. This second collision is the one in which people are killed or injured.

It occurs when moving vehicle occupants slam into

the abruptly stopped or nearly stopped vehicle's hard interior surfaces, or are ejected and hit an equally unforgiving outside surface.

Air cushions diffuse the potentially harmful forces of the human collision by serving as a pillow between the occupants and the vehicle's interior.

There's a growing number of survivors of car crashes who say that they're here to tell about them only because they had the good fortune to be in a car outfitted with air cushions.

For example, a Utah woman and her 81-year-old mother were driving near Salt Lake City when she lost control of her car, and smashed into an oncoming diesel tanker truck at a combined speed of 95 miles per hour. It was the kind of crash few people survive.

What she didn't know before the crash was that her used car was one of just 10,000 equipped by General Motors with air bags during the mid-1970s. The air bags saved her and her mother's lives.

A doctor from Kansas City hit the biggest city transport bus in town with both his car and the bus traveling at about 20 to 25 miles an hour. Within seconds after the crash, the doctor could see that he was alive, had no broken bones, headache, or whiplash injury and, best of all, could walk away from the crash.

A Schiller Park, Illinois driver was involved in a head-on collision with both his car and the oncoming car traveling about 35 to 38 miles an hour. His windshield shattered, but the driver "was perfectly all right, fully mobile and able to go back to work within an hour after the crash."

The most extensive, real-world demonstration that air cushions are lifesavers began in the mid-1970s when Ford, General Motors and Volvo sold or leased more than 12,000 cushion-equipped cars. As of July 1983, these cars had traveled about one billion miles. There had been 267 frontal and front-angle crashes severe enough for the cushions to deploy. The Insurance Institute for Highway Safety, a traffic safety organization supported by automobile insurers, analyzed injury data from most of these crashes, and found that air cushions "substantially reduce the likelihood of death and serious injury to front-seat occupants."

While the evidence is clear that air cushions work, the key question remains: Will Americans buy cars that have air cushions installed and are they willing to pay an additional cost?

8500
BY
85

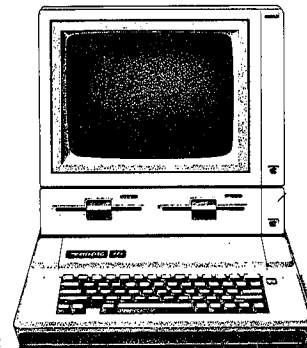
1984 Institute of Transportation Engineers Membership Drive

The International Board's goal is to increase the Institute's membership by 300 student members, 700 voting members and 1,000 institute affiliates and keep individual membership dues at 1983-1984 levels.

Help your Institute reach a membership of 8,500 by 1985.

Enter the Apple IIe drawing and help your Institute grow. Each time one of your prospects submits an application you become eligible for the Apple IIe drawing. Naturally, the more prospects you encourage to submit applications, the more chances you have of winning.

Fill out the prospect card below and encourage your associates to join ITE.



85
BY
85

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TRANSPORTATION
ENGINEERS
**Membership
Prospect Card**



Return to: **ITE**; 525 School St. S.W., Suite 410; Washington, D.C. 20024.

Prospect (Please Print or Type)

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Please send a membership Prospectus to me and I will make sure that the prospect receives the Prospectus. Please send a membership Prospectus directly to the prospect.

Rules of the Drawing: All prospect cards will be date stamped upon receipt at ITE Headquarters. Only those membership prospect cards for which an application is received by December 31, 1984 will be eligible for the drawing. In the case of multiple submittals of a prospective member for which an application is received, the membership prospect card with the earliest date stamped will be eligible. One membership prospect card will be drawn. The person who submitted the prospect card will receive an Apple IIe Computer with Apple Extended 80 column board, Apple Monitor II, and Apple duo-disk drives.

Legislation to repeal the motorcycle helmet law, House Bill 4817, was introduced during the 1983 legislative session. However, no legislative action was undertaken. Continued vigilance will be needed in 1984 to retain the motorcycle helmet law.

TRAFFIC SAFETY WEEK

In an effort to promote greater traffic safety awareness, Governor James J. Blanchard declared September 2-8, 1983 as Michigan Traffic Safety Week. A series of activities focusing on the Labor Day Weekend and the opening of schools were undertaken by the Commission and others. The emphasis was on safe driving during the Labor Day Weekend and being especially careful in school and residential areas with the opening of schools. Many public and private organizations contributed to the success of the week long activities. This effort should be continued on an annual basis to benefit the people of Michigan.

MAJOR CHALLENGES FOR 1984

What lies ahead for the Michigan State Safety Commission in 1984? Action is needed to accomplish the following:

- * enactment of a safety belt law to save Michigan jobs, reduce the economic burden of traffic accidents and reduce the deaths and injuries and resultant consequences.
- * add the Department of Public Health to membership on the State Safety Commission.
- * increase motorist compliance with Michigan's child restraint law.
- * find more solutions to the problem of drinking and driving.
- * increase motorist compliance with the 55 mph speed limit.
- * challenging efforts to repeal Michigan's motorcycle helmet law.
- * promote Traffic Safety Week and extend its impact.
- * continue and enhance the involvement of citizen participation in traffic safety efforts, through regional committees, the Michigan Traffic Safety Information Council and private sector groups.

Michigan's traffic safety resources are unique and impressive. There are strengths and capabilities in its people, educational institutions, governmental agencies, traffic safety organizations and many others. Working together, we can make the best use of these resources in 1984 and the coming decade.

By: Richard H. Austin, Secretary of State and Chairman of the Michigan State Safety Commission

In a landmark decision recently, Florida's Supreme Court said that juries may reduce damages awarded to traffic accident victims if such victims were NOT wearing seat belts at the time of the crash. Citing the legal doctrine of comparative negligence, the Court reasoned that failure to buckle up makes an accident victim partially responsible for the injuries.

Reprint from Straight Talk

**SECRETARY DOLE PRESENTS
AAA'S LIFESAVING AWARD
TO TEN YOUNG AMERICANS**

Secretary of Transportation Elizabeth Hanford Dole recently presented Lifesaving Medals for bravery, courage, and foresight to ten young Americans who participate in AAA's School Safety Patrol Program.

The Secretary presented the medals awarded the students by the American Automobile Association at a ceremony in conjunction with National Transportation Week. The School Safety Patrol program has been sponsored by AAA since 1926 and includes more than one million students at 50,000 schools throughout the country.

"Parents, children and all Americans owe a debt of gratitude to the more than one million boys and girls who take part in the School Safety Program," Secretary Dole said.

The AAA School Safety Patrol Lifesaving Medal is the highest award given to members of the School Safety Patrol. These awards are presented annually in Washington, D.C., to selected members of the School Safety Patrol. The program was initiated in 1949 by AAA to recognize and honor selected school patrol members for their heroic lifesaving contribution to their communities. The recipients and their heroic deeds are as follows:

- * John M. Aleksa, 11, and Pablo D. Lues, 11, both of Flushing, N.Y., pulled a five-year-old, who was crossing on the "walk" light, to safety out of the way of a rapidly approaching car that proceeded to turn on a red light.
- * Robert Bodine, 11, and Chadwick S. Macfie, 12, both of South Daytona, Fla., pulled a 12-year-old girl, who was walking her bicycle across the road, from the path of a speeding pick-up truck that ran a red light.
- * Iliana Cintron, 11, of Bronx, N.Y., rescued a ten-year-old boy from the path of a speeding car as he attempted to cross the street from between parked cars.
- * Annie L. Kustelski, 12, of Milwaukee, Wis., saw a school bus without a driver heading down a hill towards a seven-year-old who was in the crosswalk. She yelled a warning and pulled the frightened girl to safety.
- * Terezia C. Rauch, 11, of Arlington, Va., pushed a group of students, who were crossing at a school bus stop, from the path of a vehicle that was illegally passing the stopped school bus.
- * Deron Spigner, 12, and Ken Wetherington, 12, both of Bartow, Fla., rescued a one year-old child who had gotten out of his child restraint seat, opened the car door and fallen under the car driven by his mother as she was on her way to pick up an older child at the school.
- * Gary J. Thomas, 10, of Lorain, Ohio, pushed a student out of the way of a car that was unable to stop at the crossing due to wet, slippery pavement.

The 1984 honorees join 261 young Americans from 28 states and the District of Columbia who have received the awards since the inception of the program in 1949.

Reprint from USDOT

A recent federal study reports that side marker lamps on motor vehicles annually prevent 106,000 collisions, 93,000 injuries, and save \$347 million in property damage. Reprinted from Status Report

SAN FRANCISCO — ITE MEETING

(This years ITE international meeting is in San Francisco. Don Wiertella and Bill Lebel recently visited the city on business and share the following memoirs with Michigan Section members, particularly those who planning on attending the meeting.)

San Francisco is unique, not just in America, but in the world. From its beginning as Mexican territory, when it was known as Yerba Buena, to its stature today as a city of sophistication, elegance, and style, the city by the bay is indeed a "place to leave your heart." San Francisco, from stately old row houses to modern skyscrapers, from a soft misty morning at Fishermans Warf to bright pastels under a noon sun, from man made canyons to the acres of city parks, is a city of contrasts.

The great city occupies the tip of a 32 mile long peninsula between San Francisco bay and the Pacific Ocean. Downtown is compact and walking sight seeing trips are recommended. A view from any of the cities 42 hills offers a magnificent vista of ships, harbor, skyscrapers and country side. The climate is mild and has been described as "almost perpetual spring". Temperatures rarely drop below 40 degrees or rise above 70 degrees. A light jacket or sweater is recommended for evening wear.

The San Francisco visitor information center, a service of the Convention and Visitors Bureau has maps and literature of things to see and do. The center is located at Powell and Market Streets. One of the best maps we obtained was from the Automobile Club of Southern California.

Getting to San Francisco from the airport (approximately 15 miles) and around in the city once you arrive is relatively easy, just don't look for a parking place. The Airport Express offers seven day service from the airport to all downtown hotels. The runs start at 6 a.m., end at 9 p.m. and cost about \$5. per person. The cost of a taxi from the airport to downtown is \$20. to \$25.

Once you are in town, the municipal bus system (MUNI) provides city wide transportation on busses, trolleys, cable cars (which should be running sometime in June) and the BART system. Pick up a transit map as soon as you arrive and familiarize yourself with it. Busses go everywhere and often. They are much preferable to cabs (to expensive).

There are many things to see and do in San Francisco. Pier 39, which opened in 1978, is a double deck 45 acre shopping and restaurant complex built on an abandoned cargo pier. Among the features are a waterfront park, specialty shops, and many restaurants. Earthquake Magoons, a San Francisco tradition, is located here. Music is jazz, the patrons mixed and the atmosphere relaxed. The Cannery, located near Fishermans Warf, was once a fruit canning factory and now contains shops and fine restaurants. One such eatery is the Hungry Tiger which has a full menu at moderate prices. Also in this area is the Geradelli Chocolate factory.

San Francisco has many other famous restaurants, some quite expensive. However, you can enjoy great gastronomic experiences in San Francisco at reasonable prices. Check out one of the side street bar/grills for authentic local dinning. Highly recommended are Sam's Grill and Tadisch Grill. Try one or both. The local decore and clientele alone is worth the trip. Also, recommended, based on personal experience, is Chic's on pier 39. At any restaurant be sure to try petrale, a local white fish.

It's worth a trip to walk up (or down) Lombard Street in the section known as the "crookedest street in the world". Russian Hill is located at the top of Lombard Street, and on an early morning walk you find Coit Tower to the east emerging from a cloak of fog. While in town you might also want to visit China town, Golden Gate Park, the TransAmerica tower, North Beach (Carol Doda is alive and sagging) Alcatraz and the Nieman Marcus department store (bring lots of bucks).

If at all possible, take a few extra days to travel north and south of San Francisco. A trip north to the wine country (Napa Valley and Sonoma) can easily be done

DID YOU KNOW:

An Engineer is a man who knows a great deal about very little and who goes along learning more and more about less and less until he knows practically everything about nothing.

A Lawyer, on the other hand, is a man who knows very little about many things and keeps learning less and less about more and more, until he knows practically nothing about everything.

A Right of Way man starts out knowing everything about everything, but ends up knowing nothing about anything due to his association with Engineers and Lawyers.

in one day. On the way north stop for breakfast at Sausalito, just over the Golden Gate Bridge, and rub elbows with the monied elite. Continue north to Muir Woods (big redwoods) then onto Sonoma and the Napa Valley for winery tours and tasting. The Sebastiani winery in Sonoma is quite small and produces wine in the "older" more authentic manner. The tours are very interesting and the wine is tasty and plentiful. In the Napa Valley you can vist some elegant "Falcon Crest" style mansion/wineries. Come back to San Francisco by way of the Oakland Bay Bridge and stop at the Cal/Berkley Campus, scene of the original student unrest movements.

We also suggest an overnight trip to Monterey. Vist the Pebble Beach Golf course (Home of the "Crosby") and drive the "17 mile" toll road. It is worth the nominal charge to see the homes of the "other half" and the incredible beauty of the sea shore (traffic engineers don't live there). Eat in Monterey. There are several small, very good, reasonably priced restaurants. On the way back to San Francisco stop at Salinas, birth place of John Steinbeck. Vist his home and the exhibit in the local library.

Your trip to Monterey should be down the costal highway. The scenery is beautiful and it's suprisingly uncongested. Budget-Rent-A-Car offers great rental bargains - less then \$20 a day on weekends, with unlimited mileage.

Although San Francisco and the areas surrounding are cosmopolitan, they are not intimidating. Walk around town. Look for small side street diners and restaurants. Be sure to drive through or vist the Golden Gate Park, a western (and more beautiful) version of Central Park in New York city. Watch and listen to the "locals", they are an interesting cross section, to say the least. Avoid formal tours. Rent-A-Car or pay-a-bus, and get there yourself, it's more fun, cheaper, and you can sightsee at your own pace. Most importantly, give yourself enough time to see everything and develop a "feel" for the area. It's a long way to San Francisco. Many of us may never get back. Enjoy!

By: Don Wiertella, and Bill Lebel