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Metric Implementation for Local Agencies

by John W. Friel, P.E., Sr. Transportation Engineer, Parsons Brinckerhoff Michigan, Inc.

While the conversion of the United States Transportation System to the metric system has been occurring since 1991, much of the activity has taken place at the state department of transportation level. However, this change will have far-reaching effects on transportation projects at city, county and local levels as well.

Although legislative efforts have been on-going to relax deadlines for applying the metric system to federally funded highway design, a recent AASHTO poll found that 44 states are maintaining their original schedule for metric implementation. The Michigan Department of Transportation (MDOT) has recently released the 1996 Standard Specifications for Construction with all metric units, republished its Road Design Manual and Road Standard Plans and Guides in metric and distributed their metric versions of the Geometric Design Guide, pavement marking typical plans and maintenance of traffic typical plans as well as other related documents and design criteria.

As numerous local projects are funded at least in part with federal-aid and utilize numerous references to MDOT specifications and design criteria to provide system compatibility and the cost-effectiveness of projects, local agencies will be working in metrics as a course of business. The MDOT Engineering Services Division is encouraging local agencies in these efforts and, in fact, design projects are now underway or programmed for several local agencies.

This change will require the review of the design guides, computer software and hardware, material specifications, bid items, system inventories, driveway permit application process, etc. to ensure system compatibility among the various divisions within agencies. Several publications related to the metric conversion process may be useful reference documents. They include:

- Guide to Metric Conversion - AASHTO (1993)
- A Policy on Geometric Design of Highways and Streets (Metric) - AASHTO (1994)
- Standard Practice for Use of the International System of Units - ASTM E380-92
- American National Standard for Metric Practice - ANSI/IEEE Std.268-1922

Directly related to the traffic engineering profession, the 14th Edition of Fundamentals of Traffic Engineering co-authored by Wolfgang S. Homburger, Jerome C. Hall, Roy C. Loutzenheiser and William R. Reilly is now available and is the first comprehensive traffic engineering reference to make exclusive use of metric units. If software acquisitions are being contemplated, it would be appropriate now to determine whether the software packages allow the use of metric units or have conversion capabilities.

The metric system, with its simple base units and its use of decimal arithmetic makes it an especially logical and useful measurement system. Close cooperation between the public and private sectors in the transportation field, and creative application of the extensive technical expertise within the industry will allow this challenge of implementation to be met successfully.

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*Bill Hartwig, 1996 President
 Vicki Holland, 1997 President*

MICHIGAN SECTION ITE 1997 MEETING SCHEDULE

DATE	LOCATION	TYPE	HOST
Feb. 13	Flint	Tech Session	Dennis Grylicki (810) 767-4970
March 20	Lansing	Tech Session	Ken Johnson (517) 373-3570
May 15	Howell	Education Fund Golf Outing	Vicki Holland (313) 955-2158
July 10	East Lansing ?	Tech Session	TBA
August 3-6	Boston, MA	International ITE Mtg.	
Sept. 4	Lowell	Golf Outing	Ron Dressander (616) 249-3470
Sept. 25-26	TBA	District 3 Mtg.	
Nov. 13	Battle Creek	Tech Session	Max Phares (616) 966-3343
Dec. 11	Farmington Hills	Annual Meeting	Kevin McCarthy (810) 473-9590

A Message from the Past President; Bill Hartwig

What is a professional? I suppose many different criteria would be needed to define a professional. But surely included as one of the criteria would be that a professional is responsible for their lifelong continuing education; whether it be through a formal degree program, on the job training, attending seminars or reading books (and now CD-ROM) and studying on ones own. I doubt that many of us are still doing only what we were trained to do even if the training or education was only five to 10 years ago. Think of what you have learned in just the last several years in the areas of: E-mail, WWW, ITS, customers, partnering, metric, satellites and roundabouts.

ITE is committed to helping us in this area. In addition to the Section Technical Sessions (two remain this year- Grand Rapids and Farmington Hills, there are the District III meetings, which in next September 25-26 in East Lansing, and the International Annual Meeting, which is next Aug. 3-7 in Boston). *HINT*: put these dates on your calendar now. We also have two excellent publications, the MichiganITE and the ITE Journal. In addition to gaining new information, both publications give us an opportunity to inform other transportation professionals be writing a report or article.

Another professional opportunity is "networking" with others inside and outside our profession. The social events, meeting coffee breaks, luncheons and banquets provide both nourishment and a time to talk, share information and discuss ideas in a relaxed environment. We might want to consider attending other professional meetings to both broaden and expand our knowledge and networking opportunities. We have the chance to work with the ASCE on Nov. 12 at the Mexican Village Restaurant and I urge you to consider attending. We are also trying to set up a meeting with other design professionals in the near future.

The bottom line is that each of us are ultimately responsible for our own continuing education. Are we willing to put the effort into maintaining and expanding our value as a professional? ITE is here to help and will do a better job depending on how much we contribute. Perhaps you would like to consider joining International or bringing and encouraging a fellow professional to join the Section. *Think about it!*

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Student Scholarships Winners Are:



From Wayne State (L to R): Diane Krupinski (undergrad) and Mirza Fasiulla Baig (graduate). From Michigan State (L to R) Hilary Owen (undergrad) and Ahmed Abdul-Rahimgred (graduate).

Concrete Median Barrier Walls

by Stan Lingeman, P.E.

In 1963, Frank De Rose prepared a paper concerning the State of New Jersey's use of concrete median barrier walls for G.J. McCarthy who was the Head of Traffic and Design. Concrete median barrier usage was further prompted by the death of Clayton Voss in a cross median automobile accident on I-94 in 1967. Clayton Voss was District Engineer of District 7.

The slip form machine for casting concrete median barrier walls is designed by A.C. Aukerman of Aukerman Construction and Roy Goughnour of Michigan State University. They were first used on I-94 near Jackson Michigan in 1971.

Further research is being done by GM at their test track in Milford, Michigan to improve the shape of the barrier wall to better deflect the automobile. Allen Lampela coordinated the work for the Michigan Department of Transportation

Production rates and costs have improved with time as shown by the 3.8 miles of concrete median barrier wall which was recently constructed on I-69 in Flint in May, 1993. A costing rate of 2500 foot per day is achieved at a cost of \$68 per foot.



Beaubien Receives ITE Coordinating Council Award

Richard F. Beaubien, P.E., received the Institute of Transportation Engineers Coordinating Council Award for 1996 at a ceremony held in conjunction with the Institute's Annual Meeting in Minneapolis, MN on Sept. 14, 1996. The award was presented in recognition of his services as Intelligent Transportation Systems Council Project Leader for the development of the December 1995 special issue of the *ITE Journal* on intelligent transportation systems, selected as the most outstanding ITE Council project completed in 1995. Beaubien is the Transportation Director for the consulting



From the December Meeting...Cont. from P.

Radio Announcers and Traffic Engineers Working Together for Safety by Terry T. Brown - Metro Traffic Control

Terry has been involved in radio since the age of fifteen. He currently works out of the MITS Center, broadcasting traffic reports on WWJ in Detroit. He is employed by Metro Traffic which has over 70 offices in major US markets and even has some international offices. Metro provides traffic information to radio and television stations at no cost. The service is paid for by advertisers who sponsor the traffic reports. Metro provides traffic information to twenty-four radio stations and two television stations in Detroit. They utilize a helicopter and two airplanes during peak traffic times.

Information sources for Metro include cellular phones, the airborne units, MITS, and occasionally police departments. Terry mentioned that police departments often don't seem to understand what Metro does and how keeping the public informed is beneficial to all concerned. Metro has had to devote one person to obtaining construction information so that information is current.

Metro is trying to work closer with governmental agencies. MDOT has hired Metro for its "Direct" Project. Metro's role is to disseminate information to the public by various means on MDOT activities. This is similar to projects the Metro is involved with in San Francisco and Seattle. Terry feels that working together is the best way to provide information to the public that lets them know appropriate routes to avoid areas of congestion and delay.

From the ITE Editor; Lee Liston

Well, here it is, the fourth Michiganite issue in 12 months. Thank you to everyone who has helped get this publication back on its feet. I would especially like to thank Shirley Wollner for producing the meeting notes and Kris Dalton, our publisher, for turning my chicken scratch into English.

Keep those cards and letters coming to fill up future issues. My Email address is: LBListon.aol.com, if I can sign on with AOL, of course.



News from URS Greiner:

URS Greiner is pleased to announce that Leo N. Davis, P.E., has joined the company as senior roadway design engineer and project manager in their Grand Rapids Surface Transportation office.



November Technical Session Notes

by Shirley Wollner

Coping Skills of Speciality Users of the Roadways: *We were reminded that passenger cars are not the only users of the roadway. Different types of users have different needs.*

Effective Cycling by Don Reed, *League of Michigan Bicyclists*
Don is a retired State Police Officer who serves on a SMS Committee that deals with special use vehicles. His presentation centered on a program of the League of Michigan Bicyclists which provides "Quality Bicycle Education on a National Level". This is the Effective Cycling Program. Don told us that cyclists fare best when they act as and are treated as drivers of vehicles. The Effective Cycling Program is a timely service since bicycle usage has increased over the years, most recently with the advent of mountain bikes.

Don presented some bike crash statistics. Car/bike accidents 17% of all bike accidents with 95% of these involving fatalities. Falls account for 50% of all bike accidents. The remainder of bike accidents are bike/bike accidents 17%, dog/bike accidents 8%, and 8% other. He also noted that the crash rate decreases with an increase in miles driven. Don advises that children under 8 years old be kept on the sidewalk since they are not aware of the rules of the road.

The Effective Cycling Program is taught by certified instructors who have undergone 40 hours of training. They offer three programs for adults based on skill level. Time is spent on the road not in the classroom. They also offer three programs for kids with the first of the three programs a 1 hour session geared towards parents. The League also offers content specific courses such as commuting, family cycling, off-road biking, bike maintenance, and motorist education.

One other element Don discussed was the facilities provided to bikers: Roads are designed for motor vehicles. Ten to fifteen years ago 3 foot bike lanes were implemented although The League of Michigan Bicyclists petitioned unsuccessfully for 6 foot wide lanes. He noted that the State is not required to maintain the bike lanes at the same level as roads. One interesting fact he brought up is that you are 2.4 times more likely to be involved in a crash when you are riding on a bike path. It is no longer mandatory to ride on a side path where one is provided. Many bike paths are often design poorly. He noted that the new path in Petoskey has mailboxes in the middle of the path. How's that for a road hazard!? One thing Don suggested was when riding on the road you travel

1 ½ feet inside the fog line. This forces drivers to move around you. This is just one of many suggestions which is taught in the Effective Cycling Courses.



Over the Road Driver, by Pat Doyle, *Amway Corporation*

Pat has worked for 26 ½ years as an over the road driver for Amway. He presented another aspect on Specialty Users of the Roadways. Over the road drivers work a grueling 10 hour on, 8 hours off schedule which forces them to work and sleep during various times of the day over a course of a week. Pat stated that deregulation has created underpaid drivers with lower skill level and less roadway respect. The larger trucking firms can have a turnover rate of 300%. Pat simply stated "you get what you pay for". These firms need to treat drivers as humans so they don't take their frustrations out on other drivers. Amway has 25 units which serve as "Ambassador on the Highway" Amway treats its drivers with respect since they provide a very public image of the company.

Pat discussed some of the laws and regulations that make things difficult for over the road drivers. Things such as the differential speed limits for cars and trucks. This creates a situation where cars pass trucks on the right before the trucks have a chance to change lanes. Most states, unlike Michigan, keep cars and trucks at the same speed. Another thing he mentioned was the advent of Satellite Tracking in the trucking industry. While this makes it easy to track loads, drivers feel that someone is looking over their shoulder at all times.

One thing that Pat pointed out was beneficial was the advance lane closing procedure that Kentucky uses. Drivers are alerted five miles prior to a closure, and every mile thereafter until the lane closure. This helps prevent the bottleneck which often occurs at the closure.

Developments in Barriers and Their Capacity to Forgive

by Jim Hassels, *Energy Absorption Systems*

Jim is a regional Manager for Energy Absorption Systems (EAS) covering 5 states and 3 provinces. EAS has been in the business of providing safety devices for 25 years. EAS provides a number of other safety devices to help provide protection against things like guardrail ends and bridge piers.

One issue that developers of such safety devices must contend with is changes in the vehicle fleet. The trend has been towards smaller cars but the devices still must protect the larger vehicles. The devices can't stop a small car too quick but they also can't let a big car proceed through the hazard. Most devices are designed for a bumper that is 18 inches off the ground. However, the popularity of pick-ups and sport utility vehicles with a higher center of gravity creates problems. These types of changes in the vehicle fleet required that many good systems be redesigned or eliminated to accommodate the changes in the fleet.

The FHWA provides guidance for design with specifications that must be met. Formerly the NCHRP 230 specification was met. In response to the fleet changes the new specification that must be met is NCHRP 350. Designers need to deal with crush ability and higher centers of gravity. Consider the following elements; compact cars have less bumper to crush but also less weight to stop, pickups have little area for crush ability (bumper to wheel well) but have higher weight. NCHRP 350 strives to even the playing field. This makes it more difficult to redesign some products to meet the new standards. Other things that are included in the redesigns include things such as the increase in kinetic energy when using a design speed of 100 km/hr versus 60 mph, an increase in kinetic energy of 7%. NCHRP 350 considers the occupant risk, i.e. how does the vehicle hold up. It standardizes weights and vehicles.

Having educated us on the aspects surrounding NCHRP 350, Jim went on to illustrate how they were able to obtain the new standards with a new product from EAS, the TRITON Barrier. The TRITON is a barrier product suitable for short duration projects which are not suitable for concrete barrier but where cones and barricades are not suitable due to the need to prevent penetration of the vehicle into the work site.

Triton is a 140 lb polyethylene barrier that can be filled with 145 gallons of water ballast to a weight of 1,350 lbs. The sections are joined by steel pins and installation is relatively easy, 30 sections can be installed in a half hour. Triton is not anchored to the pavement and allows for deflection. It can absorb the energy of the errant vehicle. The goal is to try and capture the vehicle and if it can't stop the vehicle it redirects it. Jim showed some video tests that were presented to the FHWA to illustrate the effectiveness of the product.

Triton is approved for use by MDOT although they are still experimenting with the device. The Cadillac and Alpena District Offices have purchased Triton. The state would like to know when and where the product is used in the state so they can gauge its effectiveness.

WANTED: Traffic Engineering Supervisor

We are seeking a Traffic Engineer capable of supervising an established Traffic and Safety Section. The successful candidate should have a B.S.C.E. in Transportation Engineering and 3-5 years practical experience in signs, signals, marking, liability and traffic impact studies. P.E. registration and supervisory experience are strongly preferred. Must be able to deal with the general public, contractors, legal and police agencies. We offer a full benefits package and salary commensurate with background and experience. County residency is required within 12 months of starting date.

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Communicating Safety

by Professor Bill Donohue, MSU Department of Communication

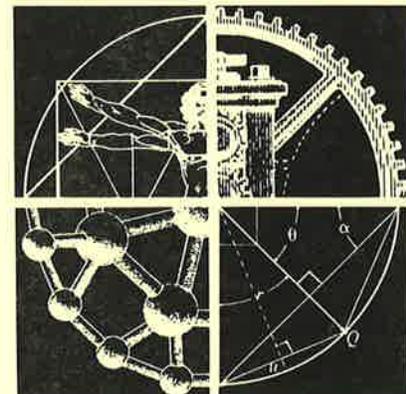
Bill's presentation was geared towards assisting us with our communication concerns. Querying the audience Bill found the things we were most interested in were situations where a persuasion issue is involved and hot issues where diffusing emotion is important. Bill then showed us how to gain control of the situation.

The first thing your audience does is assess your credibility, and just listing your credentials isn't enough. The audience wants to know that you are listening to them. They want you to care about their concerns. If they feel you don't, they tune you out and start forming their counter arguments. The audience needs to feel you are competent, trustworthy, and you need to be dynamic. Be stimulating not boring. Remember, persuasion is audience centered so start where the audience is. Know where your audience is coming from or you will fail to persuade.

The second thing you want to do is become audience centered. Know their values, beliefs, likes, and dislikes. That way you know which buttons to press. The most common mistake made when trying to persuade someone is underestimating people's perceptions. Things such as gender, cultural background, age, and experience or skill knowledge impact how people think.

Cont. on P. 11

ENGINEERS



TURNING IDEAS INTO REALITY

Cont. from P. 15

TELLING YOUR STORY: Public agencies need to do a better job of telling their success stories. If you are doing something that is successful such as a road widening project, improving public transportation or improving public safety, reporters are going to be interested in your story.

Why? Because public agencies such as State County and City governments as well as transit operators are thought of by the media as the fiber of the community and a major player representing a municipal agency that is of interest to the public. Professionals working for public agencies should take advantage of their unique position and tell their stories to the media and the public. Following are some effective strategies for communicating with the public:

- Publishing a regular Q/A and "Roadworks" column
- Press Releases and Press Conferences
- Staging "Grand Openings" for multimillion dollar projects
- Circulating newsletters to the media
- Participating in TV and radio talk shows

A separate paper on *Communicating Effectively with the Public* provides more details on various strategies that have been used by public agencies to tell their stories successfully.

CONCLUSIONS: Remember everything you bring to the interview rather than what you make up after it starts. Preparation in advance of a news interview bearing in mind the points that have been summarized in this article is critical in conducting a successful news interview.

PROFESSIONAL TRAINING: In order to be fully prepared to conduct successful news interviews, professional training is essential. Much of the material used to prepare this paper comes from seminars conducted by the CMR group which provides specialized training in communications and media relations. The CMR group can be contacted at the following address: **The CMR Group, 22644 Cavalier Street, Woodland Hills, CA 91364. Phone 818-225-8408. FAX 818-225-8418.**

REFERENCES

1. Lalani, Nazir and Gerard, David, "Communicating Effectively with the Public," *ITE Journal*, October 1995



July Technical Session Notes

by Shirley Wollner and Mark Bott

Dr. Tom Maleck was our host for the July Technical Meeting which was held in East Lansing at the University Club. At this meeting we had a special guest appearance by Dave Richardson, Candidate for ITE International Vice President. He gave a talk during lunch about his candidacy and the need to get the word out about our profession. It is still amazing after all these years that many people, especially the media, do not know what a traffic engineer is or does. Therefore, the next time you are meeting with the public make an extra effort to inform them of what we do and why.

Our first presentation was by Dr. Gilbert Baladi, Michigan State University, on "Types of Pavement Distress and How to Identify Them." Dr. Baladi outlined the distresses found in both asphalt and concrete with a slide presentation and a general description of what to look for when reviewing pavements. Although all pavement distress is a concern particular attention should be given to those which can affect the safety of the motorist. These distresses are as follows:

<u>Asphalt</u>	<u>Concrete</u>
Bleeding of Asphalt	Blowup
Lane/Shoulder Dropoff/Heaveoff	Lane/Shoulder Dropoff
Polished Aggregate	Polished Surface
Potholes	
Rutting	

Dr. Baladi concluded his presentation with the importance of the management systems. He reminded us that the collecting of data is directly related to the health of the transportation system. Without it how can we manage anything?

"Non-Motorized Planning Applications of GIS" was our next presentation given by Paul Hamilton of Tri-County Planning. In 1981 Tri-County adopted a Bicycle Transportation Plan for the urbanized area. But the ability of Tri-County as the MPO to move forward on this plan, which was over 100 pages, was constrained. As we are aware ISTEA required us to consider bicycling and non-motorized transportation options to reduce congestion, improve air quality and assist in the programming of Enhancement projects. Therefore, in FY 1993, Tri-County reinitiated their non-motorized activity at the regional level. In order to accomplish this Paul outlined for us the work in progress:

1. Develop an inventory of existing non-motorized facilities. This inventory was both in database and map form.
2. Surveyed interested parties for currently planned facilities. Determine generators' locations.
3. Surveyed interested parties for additional potential or desired facilities.

4. Mapped results from steps 1 to 3 into Tri-County's GIS. available inventory information about each facility was incorporated into attached database.
5. Maps sent to local agencies for review/comments.
6. Through the appointed Bicycle Planning Task Force asked for a vision in developing a bicycle plan.

With the above information in a GIS Paul indicated that a system level analysis could be done. This is a key item which was combined with the management systems when determining the suitability of a roadway as a facility.

Paul gave us an update on work being done in bicycle forecasting. He told us of four methods/models to use. These are Bicycle Crashes, Transportation Disadvantage, Bicycle Commuter Model, and Demographic Projection Model. Which one should you use? Paul recommends combining them to provide a forecast. Although it may not be correct, may be better than what we have now.

In conclusion Paul commented on what Tri-County learned from this effort: Include notes in your database - it is difficult to add them later. Note the offsets of facilities, in particular if they are sidewalks. On a map sidewalks will appear to overlap the roadway. Add a common road referencing system and include driveway information. Also recognize that facilities can service more than one mode of transportation.

The next two presentations were the Student Paper Award Winners. This year there was a tie for first in the individual competition. Since two papers were clearly superior, it was difficult to declare a single winner:

The first paper was presented by Eric Penfield, MSU. His paper was "An Analysis of the 55 mph Speed Limit and its Effect on Traffic Fatalities." Eric was drawn to this topic because of the recent debate regarding raising the speed limit in Michigan. The question arose: How would fatalities increase with a raise in the speed limit? Eric's research concentrated on what occurred when the 55 mph speed limit was established. His research showed that in 1974 when the 55 mph speed limit was implemented, no sharp decrease in fatalities occurred. The rural fatality rate remained constant after the 55 mph speed was implemented. As a reminder to us all, prior to 1974 the rural speeds were 65 mph in the day and 55 at night. This provided a good before and after period of ten years each.

The second paper tied for first place was by Min Zhou, also from MSU. Her paper was titled "The Relationship Between Hourly Volume/Capacity Ratio and Hourly Accident Rate". Min desired to examine the relationship between traffic volumes as exposure and accidents. Sometimes when a road is improved accidents go down and sometimes they increase. She looked at the volume over hour for a disproportionate number of accidents occurring during low volume hours. Her study segment was I-94 for a 16 mile segment. The data was from 1993 when this segment had an ADT of 124,000 vehicles per day.

The 1994 *Highway Capacity Manual* gives capacity as 1,495 passenger cars per hour per lane. I-94 has six lanes in each direction. When Min eliminated all ramp accidents she had 1,741 accidents remaining in the study segment. 57% of the accidents occurred on weekdays and 43% were on weekends. 32% were personal injury accidents. This data was from an urban freeway with high volumes and low speed. 80 percent of the accidents involved multiple vehicles with 45 percent rear end accidents. The hourly accident rate was not a function of daytime or nighttime but rather was a function of congestion. Rear end accidents are highly sensitive to congestion. Single vehicle accidents are highly sensitive to density and are more likely to occur when lower volumes are present. Min felt these results justified the use of LOS C for design purposes.

After a fine lunch, we had a presentation by Gary Witzenburg of the National Motorists Association. Gary gave a presentation titled "Drivers Deserve Reasonable Speed Limits". He reviewed the top ten "truths" regarding speed limits and showed how the popular media reinforces the myths that speed kills. The following summarizes Gary's presentation.

1. Speed is a major cause of accidents and fatalities. Gary pointed out that for the State of Florida, only 2.2% of all accidents which occurred in 1993 had "speed too fast for conditions" as the listed cause.
2. The 55 mph speed limit has saved thousands of lives. The 55 mph speed limit was imposed to save fuel. Discretionary and recreational driving decreased in this era due to the fuel shortage. Fewer miles driven means less exposure. In truth, accidents were decreasing prior to the 55 mph speed and continue to do so.
3. Speed limit enforcement is driven by safety concern. Gary stated there are endless examples of enforcement for revenue. Florida's statewide take from speeding fines in 1994 was over \$75 million. California passed a "quota" bill in 1994 requiring counties to make up the difference between each years ticket revenue and that of fiscal year 1992-93.
4. Speed limit enforcement increases safety. Research shows that enforcement is most effective when it is highly visible. Most revenue generating tactics require enforcement by stealth however.
5. Lower speed limits reduce average speeds and accidents. A 5 year study funded by FHA confirms that motorists don't alter their speed to conform to speed limits they perceive as unreasonable.
6. Higher speed limits increase average speeds and accidents. A study of 66 sites in Michigan showed that accidents didn't increase after limits were raised or decrease when lowered. The most beneficial safety effect occurred when speed limits were posted within 5 mph of the 85th percentile speed.

7. Slow (45 mph) speeds are essential in construction zones. Gary stated "Absolutely, *when* workers are present but not when no workers are present and traffic can proceed at normal speeds." Construction zones are often posted at 45 mph for no apparent reasons, lowering the credibility of the speed limit with drivers.

8. Slower is always safer. Drivers are most likely to get into accidents when they are driving significantly lower than the average speed of traffic. Vehicles traveling 10 mph slower were 6 times as likely to get in an accident. They were 10 times as likely when traveling 20 mph slower but only two times as likely when traveling 20 mph faster. The safest drivers drive within 5-10 mph above average speeds.

9. Use of radar detectors increases speeds and accidents. Years of research do not support this. Detector use results in lower speeds. When the alarm sounds detector users check their speed and increase their awareness. People using detectors have 23 percent fewer accidents per mile than non users.

10. Drivers disobeying speed limits deserve to be punished. Since 1973 speed enforcement has become a multi-billion dollar business. The system depends on people believing that speed laws are just and they deserve punishment -or they don't think they can win in court and pay without contesting.

"Michigan Railroads' Freight Situation and Highway Interface" was the next presentation. It was given by Jared Becker of the MDOT UPTRAN Freight Division. Jared informed us that Michigan railroads are healthy and growing. The reason is two tunnels connecting Michigan with Canada. The Detroit Tunnel has undergone a recent enlargement. And the St. Clair River Tunnel is now open. This removes all dimensional restrictions and all traffic can now be handled non-stop through the tunnels.

NAFTA has contributed to the growth trend. Michigan serves as a conduit for traffic from Montreal and Chicago to the heartland. In '1995 there was a 20% increase in daily trains in Michigan. The types of trains are different in nature. They are shorter and faster with more cars. The freight trains travel between 70-75 mph. The intent is to remove or reduce congestion by removing truck traffic from the interstate. Jared also talked about areas of concern regarding safety. Michigan is re-examining all safety interconnects in the wake of the Fox Grove, Illinois tragedy. Michigan is a leader in pre-signals to protect crossings. There has been a problem regarding lack of commonality between modes. Each knew about their part but not the others. There also has been no history of joint inspections with the railroads and MDOT.

Another problem is that vehicle storage between the crossing and the railroad is not considered in a road widening and the interface is not modified as a result. In answer to these issues there is a changing approach to Safety Management. The new approach has been to develop Diagnostic Study Teams which take the team approach to derive the best decision.

Another interesting talk came from Frank Cardimen of the Traffic Improvement Association of Oakland County. Frank presented an "Update on Traffic Demand Management (TDM) Project Results. The TDM was funded for with a grant from ISTE. The project tried to manage congestion and used the Oakland Technical Park as a study area. 50,000 new jobs have been created within a 4 mile radius of the Chrysler Center since 1985. Oakland County tied with Macomb County to have the highest drive alone rates in the country of 87.4%. When a survey was conducted of 20 major institutions in the area, 42% of the respondents said they would use transit if it were available, at least one day a week.

TIA tried a variety of techniques that would improve the level of congestion without lessening the mobility of individuals. To this end TIA functions as an information broker. A number of TDM strategies were tried at the Chrysler Technology Center. Car pooling met with less than 1% effectiveness in spite of 770 names submitted. Transit was very effective when the emphasis was changed from traditional methods to demand sensitive. Two new transit routes were developed to the Chrysler Technical Center with approximately 200 riders per day during the peak periods. A five day a week lunch shuttle was tried but failed likely due to Chrysler having a cafeteria on site, creating a conflict of interest.

The final presentation of the day dealt with travel. Dr. Maleck was our tour guide to the "Highways of Russia". He and Dr. Taylor traveled to Russia in early June to help the Academy of Architects and Civil Engineers develop a joint educational venture with Michigan State University. The Academy trains all of Russia's traffic engineers. The Academy is located in Vogelgrade which is 21 1/2 hours by train from Moscow.

Dr. Maleck told us about some of the differences in transportation in Russia: All pavement markings are solid white and are not reflectorized. They also are all thermoplastic, no paint is used. Few signs or signals are used. There are many pedestrian underpasses. Pedestrians are not allowed to cross at intersections and railings are present which prevent this. Sidewalks are very wide, up to 60 feet. The intersections are very wide with numerous lanes. The subway system is very good and stations are decorated with chandeliers and paintings. Electrical busses use an honor system for the fares.

The economic differences between the United States and Russia were also pointed out by Dr. Maleck. Over 70% of the people in the Ukraine make less than \$40 per month (it costs \$36 a night for a Russian Hotel). Twenty-four hour armed guards watch the cars and floor monitors hold your room key. The exchange rate was 5000 to 1 at the time of their trip.

Dr. Maleck and Dr. Taylor had very gracious hosts. They hope to reciprocate when Russian professors visit MSU later this year.



One you have established yourself with your audience and are aware of their concerns, you can get to your message. Bill reminded us "the mind can only absorb what the butt can endure." Get your audiences attention and give them a message they can logically follow. Also make your message emotionally engaging. Use whatever emotion is functional for your purpose; rage, sympathy, or whatever. Bill referred to the term "high ethicacy". If people can do something about it fear works as a persuader. An emotional message sticks with people longer.

The fourth thing to remember is that people tend to comply with messages under certain conditions. Those conditions are where the risk to them is minimal and that it is in their best interest. People do precisely what they want to do. Assess where they are at and how you can refocus them. To persuade people you need to know that it is in their best interest and the risks are minimal to them.

One thing that was brought up was how to deal with the mob mentality that often accompanies public meetings where hot issues are being considered. Bill stated that you need to fit your instinct to get angry back. We all have a desire to resolve situations immediately but when we do this we only get defensive and emotional. Don't confront them but try to process their information instead. Ask questions to get information. Let them feel in control. Then move slowly to a position of sharing control, restate their concerns; "I'm glad you care about this issue, what is on your mind?" Use a flip chart to list their concerns, this helps you take control. Then the audience focuses on the chart and not on you.

We all have three needs that impact our behavior in these situations. 1) Inclusion or the need for respect. 2) Control but not domination, being able to influence the world to fulfill some basic needs. 3) Affection, we all want to be treated nicely with a general level of cordiality.

In essence we need to break issues down, negotiate the issues, and develop strategies and options using both your ideas and audience input. Put yourself in charge by providing structure to the situation. Once you satisfy your audiences needs they will be ready to listen to you.

Geotextiles: Experiences and Solutions

by Tom Byle, Dir. of Maintenance, Kent County Road Commission

Tom's presentation showed examples of projects where the Kent County Road Commission has used geotextiles in road construction where poor soils exist. Standard peat removal treatment is expensive. If no treatment is done the road either remains a gravel road or if blacktop, it needs repeated shimming. Tom showed us how Kent County has used geotextiles and the 3-dimensional grid or cellular confinement systems over the past ten years. These treatments allow the settlement to be more controlled and uniform.

Tom showed us a number of slides that showed the road sections before, during, and after construction. The first project was 84th Street near Byron Center. This road was built in 40 feet of muck. The roadbed was removed, geotextile and lightweight slag was placed to reduce the total dead load on the peat. After the first year some distress was evident. Those spots then had a layer of geogrid placed mid depth in the slag and the first course of blacktop replaced. Another overlay of blacktop was placed over the road. The road shows little distress even though it is a primary arterial with heavy truck traffic.

Tom also showed us a project in Tyrone Township where the cross culverts have repeatedly sunk over the years. Fabric was put under the pipe bedding and tied into the roadbed. Cellular confinement was placed under the pipe to spread the load. Another project in East Grand Rapids dealt with a 1900 foot road section floating on 30-35 feet of wet soft muck. They used geotextile, cellular confinement, plastic water main, and light weight slag in this instance. Tom also showed us what gentleman the road crews can be. They the girl's cross country team rides across the inlet on their shoulders during construction!

Tom's experiences with geotextiles have been favorable. Typical cost is \$75 to \$150 per linear foot. Tom hopes that others will be encouraged to try these materials.

Advance Freeway Lighting *by Bob Catone of Holophane Corporation*

Bob's presentation brought us up to date on changes in the freeway lighting industry. Bob first gave us a demonstration of the different types of prisms and reflectors to show us how they are used to deflect light.

The Illuminating Engineering Society (IES) road lighting committee is rewriting the standards. Currently the amount of light that is on the road is measured. However, the amount of light isn't a good indication of how well you can see, i.e. the visibility. Studies have found that more illuminance didn't decrease accidents, nor did more luminance, but improved visibility did. In other words the amount contrast we see is important.

Contrast affects visibility. In 1977, the Europeans adopt luminance as their factor for measuring lighting performance. This provides negative contrast on the roadway, dark silhouettes on bright background. To double contrast, luminance on the target needs to be increased by 10 percent. This doesn't take much extra light. More light lowers the level of contrast.

This findings indicate that the current U.S. standards do not necessary promote the best conditions for freeway driving. This is a controversial subject. Many people in the industry are reluctant to make this change, especially the utility companies.

Special Report: A Successful Guide to News Interviews

by David Gerard and Nazir Lalani, Traffic Engineering Council

INTRODUCTION

Successful news interviews do not occur by accident. If certain important points are borne in mind, the chances of conducting successful news interviews can be greatly improved. In order to accomplish the objective of a successful news interview, it is important to identify the principles that you can use to give successful news interviews. By doing so, you will be well prepared to meet the press.

News is highly situational. Yesterday's news may be forgotten today. Sensational developments keep the story alive and running for several days. Your story is one event among many in the news. Reporters may only have a brief time to understand a complicated story and depend upon you for help. They may have some perspective or angle of their own that you must deal with before they can appreciate your point of view. You may find yourself dealing with a reporter who knows a great deal about your business and understands it. You may also find yourself dealing with news reporters who know very little about you and appear rude in their rush to grab your story and run. Most reporters have a sense of mission and feel they're entitled to own information. They feel they are conducting a public service and have little sense of the damage that can be caused by misreporting.

The following information provides tips on how to best prepare to give a successful news interview and provide information to the public without it becoming unnecessarily "sensationalized." Much of the material, which is copyrighted, was developed by Chuck Rossie over the last 15 years working as a reporter in the media. The authors also acquired the information by attending seminars and sessions at ITE meetings given by Chuck Rossie.

REPORTER'S PERSPECTIVE: News interviews are the heart and soul of the news. Interviews make little difference between an idea and the actual story. Much of the reporter's time is devoted to searching for victims, witnesses, participants, suspects, accusers, investigators, officials or experts. Successful news gathering includes digging up interviews to give depth, background perspective and personality to the news. Questions are excerpts from an interview used to explain, inform and illuminate events. Quotes put a human face on journalism. Colorful and telling quotes known as "sound bytes" are prized in the news game. Reporters expect to pick up background from the people they cover to understand virtually any story. They believe they are doing the right thing when they get information from you and immediately attempt to restate it in a more interesting way or ask you to defend your comment. Most important of all, the reporter sees you as a source of information to tell the reporter's story. Therefore, you need to use news reporters **to tell your story and make sure that they have the story right.**

UNDERSTAND THE BASICS OF REPORTING

The following basic points should be remembered when conducting news interviews:

- Interviews are the basic tools of news gathering. Reporters start doing news interviews their first day on the job.
- How to give good interviews are the same for all media.
- Interviews are like a ritual in which the reporter acts on behalf of the public and you speak through the reporter to the public.

CO-OPERATION AND GROUND RULES: The understanding with which you give a news interview, the ground rules, may be as casual as the usual relationship between yourself and the journalist or specific negotiation terms and conditions. When preparing for a news interview, the following key points should be borne in mind.

- Assume all information given is on the record.
- Set the time and location that is mutually convenient.
- Set a timetable to determine in advance how much time to devote to a particular interview.
- Decide which topic is the reporter's primary area of interest.
- Set your own pace and do not allow the reporter to hurry you.
- Set limits by identifying and staying within your own comfort area of knowledge or expertise.
- Anticipate the questions that may be asked and prepare your answers before you conduct the interview.
- If you are not the correct person to be conducting the interview, tell the reporter that you need to refer them to the person who can best answer their questions.

UNIVERSAL MISTAKES: There are certain universal mistakes that are often made which result in unsuccessful interviews. The following mistakes are the ones that occur most frequently:

Do not treat the interview as an ordinary conversation: News interviews are content-driven exchanges in which you provide comments for use in a news story for an audience which does not come into direct contact with you. The interviewer represents the public. You are using the news process to reach the public. Therefore, do not treat news interviews as conversations.

Do not overload the system: Jargon and talking too much overloads the system. Carefully select the words that will be understood by the public and the reporter. You are not speaking to fellow experts or insiders.

·Do not merely answer questions: It is your interview. Tell your story. Don't wait for the right questions. Be the expert and bring up the points you think are most important. Take charge of your answers. Repeat the major point that you wish to communicate several times during the interview.

·Communicate the big picture: Many important stories are trivialized into "winners" and "losers" or simple examples. When providing data in answers to questions, make sure that the reporter keeps the big picture in mind.

ANSWER INFORMATION: It is understandable to wonder what would sound good as an answer when a difficult question comes up. A more useful approach is to use a mechanism for gathering up raw material for an answer:

·Facts: What are the facts of the event? Who? What? Where? When? Why? How?

·Laws, Rules, Regulations, Contracts: What laws or rules applied to this incident? Were the laws or rules preserved or broken? Were regulations and contracts followed?

·Policies: How do we ensure that laws are observed? Which policies support laws, rules, regulations and contracts or obligations? How are those policies promulgated?

·Procedures: What is supposed to happen every time an event similar to the one we are looking at takes place? How do we make sure procedures are followed?

·Documentation: Can we document our actions?

·Information: What information on the event or events is on the record and widely available from other sources?

·The "buzz": What rumors are circulating?

DEALING WITH EMOTION: Anguish and upset go hand in hand with emotion. In this situation, it can be very difficult to express ideas and provide answers under emotional conditions. It can also be very difficult for reporters and the public to accept your comments if you ignore the human element. One response strategy for emotionally-charged topics is using empathy. The "empathy grid" consists of five elements which should be used in answers on emotional topics in the following order:

·Recognize the emotional component with an empathic statement.

·Memorize your answer.

·Provide background on the source and thinking behind the answer.

·Repeat the essence of the answer several times. Craft the second statement of your answer as your quotable quote and make it the central theme of your interview.

·Introduce your plans for the future to avoid being bogged down in the emotional upset.

SURVIVAL GUIDE: Keep the following in mind during news interviews to make them successful and productive:

1. Always tell the truth.
2. Prepare your agenda for the interview ahead of time.
3. Prepare answers to all questions that may be asked.
4. Present your main points or conclusions first.
5. Use the "empathy grid" for emotional topics.
6. Use anecdotes and illustrations to give visual life to your story.
7. Sharpen your comments into memorable interesting quotes.
8. Speak from the public's point of view.
9. Do not play verbal ping-pong with the reporter.
10. Keep the big picture in the frame.
11. Tell your story. Repeat several times the main message you wish to communicate to the public and make that your "sound byte" quote and central theme.
12. Avoid arguments with reporters.
13. If interrupted in the middle of a comment, complete your answer before changing the subject.
14. Listen carefully to questions and provide an overview before proceeding to any off-the-wall questions.
15. Always set the record straight on questionable information.
16. Exercise extreme care if asked to agree to paraphrasing of your remarks.
17. If presented with a long list of questions, select and identify the ones you will answer.
18. Take each question as it comes. Do not ask reporters to repeat a question. If the question is unclear, ask for a clarification.
19. Avoid jargon at all times.
20. Be direct, not evasive.
21. Don't pass the buck. However, you can offer to connect the reporter to the right person if you are not the proper person to answer the questions.
22. If you don't know the answer, don't guess. Offer to find out the information as quickly as possible.
23. If you cannot divulge information, state the reason(s) in a matter-of-fact way.
24. Avoid negative or double-negative statements.
25. Don't attack other organizations or competitors.

Cont. on P. 8

December Meeting Notes - by Shirley Wollner, ESATransportation Engineer

Traffic Safety - Trends and Major Factors,

by Leonard Evans, General Motors Safety Research Department

Leonard is an internationally renowned expert in traffic safety. He is a principle research Scientist at General Motors in Warren, Michigan. He is also the author of the book, *Traffic Safety and the Driver*. Leonard gave us a humorous presentation that contained a lot of facts regarding traffic safety. Deaths per billion kilometers traveled have undergone a more or less steady decline since 1921 when data was first available. This decline is apparent in seven industrialized countries including the United States. When comparing deaths per thousand vehicles a similar decline is apparent in the US. However, more deaths per thousand vehicles are apparent in countries that are less motorized. For example, the US has 0.20 deaths per thousand vehicles while Ethiopia has 17.20 deaths per thousand vehicles.

Leonard feels that several things influence traffic safety. Elements such as engineering and the road user play a strong role. The types of engineering that he discussed are the roadway, traffic, and automotive engineering. Roadway engineering deals with things like the type of road. For example, two thirds of the crashes occur on urban roadways but two thirds of the deaths occur on rural roads, presumably due to the travel speeds.

Many ways that vehicle engineering affects traffic safety were presented. Things like the mass of vehicles which has changed in recent years affect the severity of a crash. In a two-car crash, if one vehicle is 20 percent heavier than the other, the chance of a fatality is doubled. A heavier fleet is a safer fleet but our fleet has tended toward lighter cars for reasons of fuel economy.

Leonard also discussed lap belts, seat belts, and how the seating position can affect the kind and types of injuries that might occur in a crash. A position in the rear seat has a 20 percent lower risk than the front seat since a normal crash mode is frontal. Center seats have a lower risk since they are further from the point of impact. Lap/shoulder belts are better than lap belts, which of course are better than no belt at all.

The presentation ended with a break down of contributing factors to crashes. The following percentages are for the United States but are very similar to those for the United Kingdom.

Road User	57%
Vehicle	25%
Road Environment	3%
Road Environment and User	27%
Vehicle and User	6%
Road Environment and Vehicle	3%

Enjoyment of Life Calculation in Costing of Tort Claims

by William D. King, Ph.D.

Bill is an economics consultant who talked about a current trend in the slow changing world of tort litigation. Prior to the 1950's economic losses weren't part of lawsuits. Now it is a familiar part of the tort claim. Wrongful death suits include compensation for loss of enjoyments. Most states compensate the estate for this. Michigan is an exception; the estate is not compensated but injured parties are.

The key question is "How do you value a life?" Bill starts with several studies that estimate the value of a life such as wage risk studies (probability of dying at work), consumer market studies, insurance studies and federal wage studies. He discards the three highest and three lowest values and takes an average of the remaining values. Then this average is applied to the individual who died. The economic value of a whole life calculated in this manner is \$3,800,000. The economic value is then used to derive the enjoyment value. Since the average earning capacity is \$800,000 per person in the US, this leaves three million dollars or \$70,000 per year for enjoyment of life. This depends on the life expectancy of the person. Michigan State Statues require this to be compounded at an annual rate of 5%. In other words, the future is discounted to the present.

Problems with this procedure include things such as the wide variation in the studies used. Figures range from \$500,000 to \$12 million for the value of a life. Others take issue with the fact that these calculations are based on an anonymous person and are then used on a real person creating an acceptance issue. Another issue is using estimates that are based on saving a life to reimburse for loss of life. This does not yield a quantitative measure of enjoyment.

Moving SMART into the 21st Century

by Dan Dirks - SMART Transit

Dan is responsible for the design and scheduling of SMART services and marketing. SMART is the Suburban Mobility Authority for Regional Transportation for the Detroit suburban area. SMART has had to adapt to changing trends such as the movement of jobs from the central business districts to the suburbs. SMART came within one day of closing in May 1995 when a millage was passed that provided operating monies. SMART learned some lessons during the millage campaign that have allowed them to provide better levels of service: they learned that a more efficient fleet was needed, routes had to be less confusing and complicated, service had to be improved to job growth areas, and that local communities needed to be a partner in the design of local service.

SMART now has five sizes of busses that allow the appropriate size bus to be used for the route. This has an annual savings of \$200,000 in fuel costs. Loop routes were eliminated in favor of north/south and east/west runs. New and innovative services are implemented in job growth areas. This includes scheduling busses as early as 4:50 A.M. for the Chrysler Technical Center to accommodate varying shift times. SMART requests community input at the start of new routes, including surveys directed at targeted businesses. SMART is the only bus company in America that has an unconditional money back guarantee. The cost is less than \$100 per month to SMART.

SMART has worked closely with many groups to ensure that services which are provided are needed services. MDOT, local Chambers of Commerce, SEMCOG, area businesses, various state agencies, and other service providers are part of the group effort to provide better service.

SMART is already planning for changes that are likely to come about when the two-year lifetime benefit restriction is placed on welfare recipients. Programs to match jobs and employees, especially at the entry level, while making sure transit can provide the connection.

What's next for SMART? Plans include development of targeted mailings to match jobs with rides. Expansion of remote scheduling such as smaller busses to senior activity centers or medical facilities. Use of AVL, automatic vehicle locators, with coordinated linehaul and paratransit operations is in the works, and provision of school transportation.

Dan spoke of many other programs that SMART has developed, too numerous to list here. The strong theme of his presentation is that SMART wants to provide services that people want and will use, and it certainly appears they are on the right track.

The New M-59 Arriving in Macomb County *by Drew Buckner - MDOT Construction*

The concept of a new major east/west route north of the Detroit metro area was first proposed in the 1980's. As more development occurred in the "corridor of opportunity," the demand for an improved M-59 increased. This developed into the current construction project that is now underway. Drew focused his presentation on the portion of the project that is underway in Macomb County.

The Macomb corridor was broken into five segments, part of which included two miles of six lane depressed freeway. Other segments included an eight-lane boulevard. Two sections are now complete. As with any project of this size and complexity, many issues arose that had to be dealt with. For example, in Utica right-of-way acquisition was designed to minimize the number of parcels needed while keeping the integrity of the city. This resulted in a change of alignment.

Another problem that occurred was the fact that the contractors cost estimate differed greatly from the engineers' design estimate. This seemed to have resulted from the length of time the project was in the design phase and the cost changes that occurred during the long term project.

The freeway section is complex, requiring eleven bridges and twenty-four retaining walls. Soil stabilization was a key issue. Approximately 1.1 million yards of earth excavation were required in the section. In addition the bridge beams required one hour to set each in place as opposed to a typical time of ten to fifteen minutes per beam. This had to be incorporated with the goal of keeping two lanes of traffic flow in each direction. The solution was to use weekend shutdowns of one direction of the freeway to minimize the impact.

MDOT has tried to work closely with local jurisdictions and businesses to minimize the impact of this project. Changing time frames have made this project challenging but the result will be a much needed and improved transportation facility.





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