Statewide Safety Program

CLINTON A. VENABLE
Chief, Division of Traffic
Indiana State Highway Commission

Introduction

A safety program for the good of the public cannot be labeled a state program, a federal program, or a local program. To be effective all units of government, all industries, all service organizations, and all individuals have responsibilities in a safety program. It must be realized that cooperation and communication between all levels of government is necessary or there will never be a workable and productive safety program.

By the best definition, safety is described as a being safe and secure, and also, any of the certain devices for preventing accidents. An accident is defined as a happening that is not expected, foreseen, or intended. By summarization we conclude that a safety program must eliminate the unforeseen circumstances that cause accidents. So it resolves itself simply into determining the cause of accidents and eliminating the cause.

At the outset it is best to examine the status of safety programs to date, at several levels, and then make plans for the future. So the first part of this paper deals with current news in the way of proposed programs and legislation which could effect our safety programs and our future activities.

Governor's Traffic Safety Conference

On March 22, the governor called a state-wide meeting on traffic safety. All civic groups and agencies concerned with traffic safety were invited to attend. The purpose of this meeting was to encourage safety activities at the local level. It was to make those in attendance aware of their responsibilities in this effort. Those of us who have been engaged in traffic safety work realize that there is a complacent attitude on the part of the general public. The governor in his address reported on the state's activities in safety. He gave a clear picture to those in attendance that the state was attacking all of the problems of traffic safety.

Also on the program, was William F. Foulis, executive director of the President's Committee for Traffic Safety, who reported on the
new federal activities. Foulis stated that he believed the public needed to be organized. He believed that they need guidance, direction, and education before a marked improvement in traffic safety can be accomplished.

This state-wide meeting was the first of several meetings to be held. It is contemplated that regional safety organization meetings will be scheduled shortly. These meetings, of course, would depend on the acceptance and interest the civic groups will take in this effort.

If and when we do gain public response and attention to the safety effort, we had better be ready with a firm and comprehensive safety program. This is not yet a public demand, but it will be.

Most certainly it is not possible for any governmental unit to legislate safety, nor to hire enough qualified personnel or in a larger sense to finance a safety program to completely eliminate all traffic accidents. Governmental units can, however, co-ordinate the many activities. They can initiate both short-range and long-range programs, and they can offer assistance and communicate with less capable areas in developing traffic safety efforts.

The first unit of state government I will discuss is the Indiana State Police. I am sure you are all aware of several of the recent special activities initiated by the state police. One example is the white-cross program whereby a marker was erected at the site of all rural fatal accidents on the state system. This was not a new idea; it was tried several years ago, but the purpose of this effort was once again to call to the attention of the motoring public the fact that people were being killed in traffic accidents. Another feature was the parking of unmanned state police vehicles on median strips in the areas of high accident concentration. This project was discontinued, and I am sure all of us recall articles in the paper which noted vandalism to these state cars. A point needs to be made here, however, and that is if the state police car parked on median strip was manned by a state trooper watching and patrolling this hazardous area, it would have had an entirely different effect on the public. Without hesitation I certainly agree with the comment, there are not enough adequate troopers to patrol our highway system.

In July 1965, two ten-point programs on traffic safety were adopted by the state police. One of the programs was directed internally at the police enforcement personnel. Some of the points in this program included a more thorough investigation of accidents, arrests for all violations, strict enforcement of the speed limits, concentrated patrolling, a continuous program of vehicle spot checks, and several other points which dealt with enlightening the public to practice safety.
The second ten-point program had recommendations concerning activities other than police functions. Such things were recommended as a stepped-up driver education course, encourage the automotive industry to build safer vehicles, encourage industry and civic groups to use their influence in promoting safe driving habits with the public.

Since the first of January the state police have been issuing to motorists who have defective vehicles a "Notice to Repair." These are visible defects such as faulty lights, improper visibility, bad windshield wipers, etc. After the issuance to repair to a motorist ten days are allowed for the repair of this defect. If the defect is not repaired and a certificate of repair is not returned to the state police, warrant is issued for the arrest of this motorist. This special drive is receiving from between 85 to 95 percent compliance. This is a step in the right direction. It is also planned that the annual road check will be held in May and June of this year by the state police, and over 400,000 vehicles will be checked this year.

A new and important activity is being undertaken by the state police and that involves fatal accident investigations in depth. Each fatal accident is being carefully investigated to see if the cause of the accident can be determined. They are checking into such things as the driver's background, his medical history, or to see if he uses drugs. They are trying to find out what the driver was doing prior to the accident, whether or not he had been drinking, and if so, how much. They are trying to find out if he had any bad habits or if the car was in need of repair. They find these things out by interviewing and talking to people in his family and his associates who would have this knowledge.

Conclusions of this investigation in depth are being compiled and will be released in the near future. Two points are known at this time and one is that the drinking incidence of drivers involved in fatal accidents is much higher than expected. Also, that vehicle defects are appearing in much greater number than expected. It is information such as this that will enable us to more correctly determine the cause of traffic accidents.

*State Safety and the Bureau of Motor Vehicles*

The Bureau of Motor Vehicles is promoting the aspect of educating the driving public in an attempt to improve the driver's ability and his attitude. Attempts will be made to have more contact with the driver and to keep him more fully informed on such changes as licensing requirements and rules of the road. Emphasis will be placed on the legal responsibilities of the driver. It is also planned that a
new driver examination will be drafted which will include more information on freeway type driving.

A new point system was just promulgated by the bureau last week. The point variations for violations will be in line with the primary causes of accidents. This means that based on research findings certain types of violations are more apt to cause accidents than others. More penalty will be assessed to the drivers who make these violations. Also planned is earlier contact with the violator. There are four steps planned in this driver contact. The first being a warning letter to the violator. An interview with a police officer would follow. The third step would be a probationary period for the driver. If the first three steps fail, the final step would be a revocation of the license. The bureau is becoming more concerned with the younger driver and plans to work closely with this age group to assist them in becoming more capable drivers.

The Department of Public Instruction, and in particular the School Traffic Safety Department, are stepping up their activities in driver education. Emphasis will be placed on trying to develop the proper driver attitude in addition to the skills and knowledge necessary. It is estimated that more than 60,000 students will be enrolled this year in driver education courses. The School Traffic Safety Department is also considering training courses for the adult driver. This course would be similar to those now being conducted in cities such as Indianapolis, Gary, and Fort Wayne. This department is also researching the need for additional lighting on school buses. Under experimentation now is the use of a rotating amber beacon on the top rear of buses. Several buses on U.S. 52 have had these flashers recently installed, and a reduction in accidents to these buses was experienced after this installation.

I was advised that this department is interested in having more pull-off blisters for school buses on the high-speed roads.

Another problem area involves narrow medians (30 feet or less) where a school bus cannot be properly shadowed from through traffic. They have recommended that in such instances a wider median opening helps to accommodate and shadow the turning bus.

Perhaps the most important department in State government concerned with traffic safety is the Indiana Office of Traffic Safety. This office is engaged in about every safety activity in the State. The conversation with the director of the Indiana Office of Traffic Safety was indeed most enlightening. It was stated that one of the most important keys in traffic safety will be the success of the program at the local level. It was further stated that we must be knowledgeable of the local problems, and we also have a professional interest in safety, but we
should also have a civic interest in safety at the local level. We should volunteer our services in this regard to local groups. This office believes that the approach to traffic safety is basically to pound the fundamentals. We preach defensive driving, but we do not tell the public what defensive driving is. We must not only communicate with each other in our various professions, but we must communicate with the individuals to keep them informed and constantly remind them of their duties and responsibilities.

The Indiana Office of Traffic Safety is vital to all of us in that it is one of our best agencies to get information to the motoring public. This organization needs our help and we certainly need its help. Of course, there are many other State agencies who are engaged in traffic safety such as the judicial system. Time does not allow us to discuss these activities, however, the courts most certainly are a very important segment in our safety effort. Enforcement is ineffective without a cooperative judicial process.

The State Highway Commission has, of course, an important role to play in this safety effort. For over two years a highway safety committee has been meeting and planning the commission's activities on safety projects. This committee is composed of engineers from most of the commission functions. The executive staff works very closely with this group. Quite recently this committee has been involved in a State-wide program in improving hazardous locations with the Bureau of Public Roads. In November 1965, the Bureau of Public Roads in its PPM-21-16 required all states to complete a hazard inventory and to identify all hazardous locations on state highway systems. This memorandum was initiated as a four-year spot-improvement program to eliminate most, if not all, of these hazardous locations. The initial phase of the inventory has been completed, and the newly-created Department of Traffic and Safety Programs is in process of compiling a four-year safety program. The Department of Traffic and Safety Programs will be responsible for coordinating and reporting all of the various highway activities in traffic safety. The bureau has set a goal at approximately $11 million a year for the next four years for spot safety improvements in Indiana. The highway safety improvements for the 1965-1966 fiscal year exceeds this $11 million figure. The 1966-1967 program is now being prepared.

In addition to this special safety program and our normal working program the division of traffic has for the last two years initiated a special high-accident improvement program. In the 1965-1966 program $275,000 was budgeted for use in improving high-accident locations. The traffic division has two operating committees, the Accident
Study Committee and the Accident Review Committee, which constantly review high-accident locations.

The highway commission granted the traffic division permission to proceed with these safety improvements as soon as corrective measures are determined. Prior program approval is not required. This eliminates over a month of delay in securing a project approval. Approximately 50 improvement projects have been handled by these committees, it is anticipated that this type of activity will be expanded in the future.

Several safety orientated research projects are underway, and probably the most important of these is the work being done by Indiana University in getting accident records set up on a computer analysis system. This research project will greatly benefit all functions of the highway system and will certainly improve their potential in locating and investigating high accident problems.

As previously mentioned the State programs on traffic safety will be influenced by what is happening at the federal level. In the latter part of 1965 a special federal act on traffic safety was passed called the Baldwin Amendment (23 USC-135). This amendment requires the various states to establish a highway safety program designed to reduce highway accidents and deaths, injuries, and property damage resulting therefrom. This amendment requires that such a program be adopted and made operative prior to December 31, 1967. It further required that this program be approved by the secretary of commerce.

Another bill was introduced into the Senate in February of 1966. The sponsors were Senators Hartke and Representative MacKay. The Hartke-MacKay Bill (S 2871) proposed a new safety bureau within the Department of Commerce. This bill seemingly transferred the safety responsibilities now handled by the Bureau of Public Roads to a new agency. This bill stated the need for research in accident reports, vehicle design, driving training and licensing, and in the criteria which establishes standards on uniform markings and controls. Special funding was to be established to finance this agency and its programs. This bill, too, requires the establishment of a traffic safety program in each state acceptable to the secretary of commerce.

Washington has been very active recently in dealing with the automotive industry in the design and safety features of their products. Much criticism was leveled at the industry for their alleged reluctance to add new safety features to the vehicles they build. Senators Ribicoff, Kennedy, and Javits were all active in the dealings with the automotive industry. It was proposed that a safety prototype model vehicle be researched and constructed. A feasibility study of this prototype
vehicle was proposed by New York State Senator Edward J. Speno. When Senator Speno appeared before the subcommittee on executive reorganization he commented that, "... the feasibility study shows that it is possible to build a prototype vehicle which will prevent the majority of injuries and fatalities from occurring even at impact speeds of 50 miles per hour."

More recently a new act entitled *Traffic Safety Act of 1966* was presented to the Senate by Senator Magnuson (S 3005). Title I of this act deals with motor vehicle safety standards. This act instructs the secretary of transportation to periodically review public and private motor vehicle safety standards and the degree of effective compliance existing with respect to such standards. These standards will be developed through appropriate research, testing, and development. As directed by the secretary, the items gathered in this research will include: (1) the relationship between a motor vehicle and motor vehicle equipment performance to motor vehicle safety (2) the effects of wear and use of motor vehicles upon motor vehicle safety (3) to evaluate and develop methods and equipment for testing and inspecting the safety of motor vehicles (4) to evaluate the adequacy of the motor vehicles standards, and (5) to develop appropriate motor vehicle safety standards.

The appropriation for this act will come from the highway trust fund, and it has been set at $3 million for 1967, $6 million for 1968, and $9 million for each year from 1969 through 1972. These funds shall remain available until expended.

Title 2 of the act is entitled, *Traffic Accident and Injury Research and Test Facility*. This section authorizes $3 million for the planning of facilities to continue the research development and testing provided for in the act.

Title 3 deals with highway safety. This section amends Title 23 of the United States Code and adds at the end thereof a new chapter on: the authority of the secretary, highway safety programs, highway safety research and development, and national driver register. This title amends and supersedes the Baldwin Amendment and passes the responsibility of highway safety programs over to the secretary of transportation. It furthermore eliminates the requirement that a safety program be established and operational by Dec. 31, 1967.

It is further provided that the secretary may make arrangements with other departments and agencies for assistance in the preparation of uniform standards for the highway safety program.

Two more bills, Senate Bill 3052 and House Bill 13290, were introduced into Congress in the first week of March 1966. Senator
Randolph introduced the bill into the Senate, Representative Fallon introduced the bill into the House of Representatives. Both of these bills amend Title 23, United States Code and add a new chapter at the end of this title. This new chapter four is called “Highway Safety.” The sum and substance of this chapter is identical to the material provided in the Senate Bill 3005 introduced by Senator Magnuson which we have just discussed. The funding for all three of these bills provides for apportionment among all of the states as follows: 75 per centum on the basis of population and 25 per centum as the secretary in his administrative discretion may deem appropriate. This would then provide the secretary of transportation with the flexibility to provide additional monies to states who are aggressive in their safety program or to any state with a pressing need to improve on its total program.

The secretary is authorized to extend highway safety research to cover all aspects of highway safety which include systems research and development relating to the vehicle, to the highway and to driver characteristics, accident investigation, communication, emergency medical care, and transportation of the injured.

This act also directs the secretary to establish and maintain a driver register containing the name of each individual whose license has been denied, terminated, or temporarily withdrawn.

The Traffic Safety Act of 1966 refers to the secretary of transportation.

The President in his message to Congress on March 2, 1966, recommended the creation of a new cabinet seat, namely the secretary of transportation. Senate Bill 3010 establishes this new department, and it is now before the Congress. This act will combine several federal agencies who have responsibilities in the area of transportation. This consolidation will include the Bureau of Public Roads, the Office of the Under Secretary of Commerce for Transportation, the Federal Aviation Agency, the Coast Guard, the Maritime Administration, the safety functions of the Civil Aeronautics Board and the Interstate Commerce Commission, and several other administrative groups involved in the transportation function.

This new department will bring together almost 100,000 employees and will consolidate almost $6 billion in funds now devoted to transportation.

Total Safety

A new concept in safety is being seriously discussed at many levels of government and industry today. The concept is entitled, total safety.
I recently read an excellent article in the December issue of "Traffic Safety Magazine" entitled *Total Safety* which was prepared by William Johnson, General Manager of the National Safety Council. This article did not specially deal with traffic safety, but its contents are excellent when dealing with any type of safety problem. I strongly recommend this article.

"Total safety means avoiding mistakes. The mistakes that injure people or produce damage." The National Safety Council has learned that there are only a handful of people who are well versed in the total application of safety. Furthermore, they find that most audiences are only concerned in matters of their own specialty. Total safety deals with the individual and his problems, wants, and needs. A concluding statement in the article was, "... only by constantly questioning accepted methods can we hope to make progress in accident prevention. Only by adopting a total safety concept can we build toward an accident-free environment."

**Engineering**

Total safety relates to the engineering phase in many different ways. Briefly discussed below, and in order, are the phases of planning, design, construction, maintenance, and traffic.

The planning function certainly should be the logical first step in appraising safety needs for proposed highway facilities. During this preliminary engineering phase, consideration should be given to provide the best and safest location of the road. Adequate capacity is a necessity when planning for safety. We should not build two lanes when we need four. We should plan the new facilities to reflect our best engineering judgment in providing for wide rights-of-way, adequate site distance, and good vertical and horizontal alignment. We should also carefully consider the access problems we will encounter. We should be cognizant of the future needs and pressures we will receive for commercial and residential developments which will border this facility. In order to control access our planners should have a voice in future zoning and land use activities which now solely rests with the local government officials.

The planning groups should be more mindful of the rapid decentralization and construction of major traffic generators near our large urban areas. They should likewise plan to handle the growing traffic problems in these areas. Our experience has shown that in the past we have not recognized the impact of this suburban development and serious traffic problems and high-accident areas have been the result.

The design phase must concern itself with the details of the new
facilities, and must thoroughly understand and comprehend what the planning people have determined is necessary for this new facility. The communication between the planning and design functions is very vital.

Probably more than any other area in highway work, the highway designers are subject to rapid changing concepts as to what constitutes a safe design. At a recent AASHO meeting in New York, the subject of the future safety features in our freeway design was thoroughly discussed. For example, several states have solicited the Bureau of Public Roads to consider radical revisions in bridge design. Designs which completely eliminate the center pier in medians is contemplated. Likewise, consideration was given to placing all fixed objects a further distance from the edge of the pavement. Some states were considering a 16-foot minimum and some states were considering clearance distances up to 30 feet. It is obvious how this would affect our structure design policies. One of the principal safety problems of design concerns pavement transition at the termination of projects. A carefully considered design is important in this feature.

On occasion, and most likely through an oversight, a built-in traffic hazard is constructed due to improper design of the cross road facilities. For example two particular locations come to mind and they are on U.S. 30 at the junctions with SR 9 and SR 109. The grade of the new facility was considerably lower than those of the cross roads. What resulted was a depressed intersection with inadequate site distance on the approaches to the intersection. These intersections have caused considerable trouble and several serious accidents have resulted, part of which can be blamed on this site distance problem.

The governor recently received a suggestion from a citizen that is a radical departure from present design concepts. This gentleman suggested that in hilly country where no passing zones are frequent, we should build passing lanes every three or four miles to allow passing for both directions of travel and prohibit passing at all other locations. This suggestion does have merit because we are now involved in constructing truck lanes which in essence perform this same function. I do believe, however, that when we design truck lanes, we should consider constructing four lanes rather than three. Three lane pavements have always been difficult to control and they do create confusion in the minds of the motorists as to what is actually intended. It is strongly recommended that regular meetings be held to discuss design problems and safety. In particular the planning, design, traffic, and maintenance engineers should be represented and participate in these discussions.

The maintenance of our highway facilities is important in a total safety effort. Everyone appreciates the fact that clean and clear pave-
ments in adverse weather conditions are a direct benefit to safety, but there are many areas that are not quite so obvious. Our maintenance people have been long involved in safety programs such as bridge widening, shoulder rebuilding, deslicking of pavements, guardrail replacement, and many others. We should, however, take note that a more concerted effort is needed in pavement deslicking. A continuous program of deslicking must be adopted and maintained. This is particularly true at high speed rural signalized intersections where stopping problems are more apt to concur. Deslicking should also be considered for areas where pavement alignment is substandard and where the motorist is more apt to lose control of his vehicle.

The program of shoulder construction needs to be more actively pursued. Our first efforts should be directed to areas where pavement edges are showing considerable traffic drop-off. These locations generally experience a high-accident rate. One of our more serious accident types in the last several years has been the head-on collision where the car has dropped off the pavement surface into the depressed shoulder section and the driver lost control and careened across the highway into the path of an on-coming vehicle. We should forget about the use of the loose aggregate shoulders. They are costly to maintain and generally proved ineffective. It is strongly recommended the use of paved shoulders with at least 4 feet of the shoulder surface being paved and the rest compacted and stabilized. We should not consider any shoulder width less than 8 feet and preferably 11 feet.

Another important facet in the total safety effort concerns site distance at intersections. Many times an intersection is hidden by the rapid growth of small trees and brush along the fence rows and shoulder of our highway system. More important most of the county and rural road approaches to the State highways are rarely cleared of brush, trees, etc., and this growth many times completely hides the important stop signs at the intersection. The approaches of rural roads to the State system should continuously be kept under surveillance to maintain adequate site distance.

The proper and adequate use of guardrail needs to be more actively pursued. We should discontinue the use of and eliminate all guardrail types that have proved to be ineffective and in some instances more hazardous than no guardrail at all. There is also an area where safety difficulties are encountered and that occurs annually in the crack pouring operations performed by maintenance. Many times the lane lines, barrier, and edge lines are completely obscured and covered up by improper application of material. Since this crack pouring operation occurs in the early winter months, it is impossible to repaint these
lines and many of our highways are without adequate pavement markings throughout the entire winter months. This type of thing cannot be tolerated and we must utilize every effort to eliminate this problem. It is strongly urged that district maintenance and traffic personnel resolve this situation. It might be possible to perform the crack pouring operation in the late winter or early spring period when it would be possible to follow up shortly thereafter with new paint lines.

Most functions of traffic engineering could be in some degree orientated with safety. Briefly mentioned are a few of the more recent safety orientated features now being incorporated by the division of traffic.

The signal design has been changed to eliminate the use of concrete pedestals. We are more fully utilizing the 12-inch indication. There is a program under way to use 12-inch signal indications on all rural, high-speed, dual-lane facilities. This program may be expanded in the future. We have also adopted the use of cantilevered signal structures to place the indications out over the pavement. We are more thoroughly appraising the safety features of our controllers and detectors. We are more carefully examining the traffic patterns and signal phasing. All of these features promote safety.

We are in the process of revising footing designs for sign structures and luminaries. We will endeavor to eliminate the protuberance of concrete footings above the ground line. We are anticipating the use of lightweight break-away castings on luminaries as well as signal installations.

We are closely examining our regulation procedures for controlling traffic. We are presently reappraising our speed zoning techniques. We are also studying no passing zones, lengths, and site distance restriction problems. We are attempting to give confidence to the motorists that the controls are correct, proper, reasonable, and safe.

Within the last five years the division has more than tripled its activities in intersection channelization. Priority on channelization work is based on the accident record. Many left-turn facilities and passing blisters have been constructed.

Conclusion

In all of the aforementioned programs and plans, there is one important element not yet discussed and that is you. You have a very important and vital part in the safety program and your actions and accomplishments will reflect at all levels of government. You, as a member of society, as a participant in this Road School Program, and as someone who has an active roll in traffic safety, must realize that
You must communicate with your fellow man. You must tell your story, tell of your problems, tell of your ideas, your recommendations, and you must listen to theirs.

There is not one answer, no one solution, and no one group responsible in this effort. Every man, woman, and child has responsibilities. Many people look up to us for answers; let us not look down at them.