

Organization for Traffic Control on County Highways

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The need for the establishment of a traffic control operation at the county highway level becomes more apparent every year when one considers the increase in traffic volumes and the miles traveled on these highway systems. The increasing volumes and usage create the demand for better roads and surfaces; the improved and paved surfaces in turn invite more and faster traffic.

The next step in this process is an increase in the accident experience. That we are at that stage now is evidenced by a look at the summary of the rural fatal accidents in Indiana for the month of December 1961. In that month there were 67 rural fatalities. Twenty-eight of these occurred on U.S. roads; 18 occurred on state roads; one occurred on the toll road; and 20 occurred on county roads. This is why, as more miles are paved and carry more and faster traffic, traffic control measures must be used to advise, direct, and regulate the flow of traffic.

The placing and maintaining of traffic control devices, that is, signs, markings, and signals, falls under the jurisdiction and is the responsibility of the county highway department and must be administered and directed by the county highway supervisor. It is therefore necessary that the county highway supervisor formulate plans for the necessary traffic control devices required for his individual county based upon his road mileages, mileage of improved roads, and vertical and horizontal alignment of his roads. It is also necessary that he determine the extent of traffic control required for the highway system under his control.

The budget will undoubtedly dictate that most county sign and traffic control programs start out small and increase in size each year. This is good, but it means that each department must develop a basic overall program with specified parts to be accomplished each year and with a system of priorities established.

The highest priority should be assigned to the erection of STOP signs. Probably the next highest priority should be given to a road numbering system compatible with your county highway system, but following the plan recommended by Purdue some few years ago.

It can be seen immediately that one cannot erect either of these sign types until it is known where the signs are to be placed. The quantity of sign material needed is not known until this plan has been developed.

In the case of the STOP sign, the highway supervisor must establish preferentiality at each intersection and then, through the county commissioners, adopt the necessary ordinances to legally support the preferentiality. In other words, all regulatory traffic control devices must be legally established before they can be standard, valid, or enforceable. In the state highway department many requests are received from attorneys for the resolution establishing a certain speed zone, STOP sign, or parking regulation.

There is more to this sign business than driving a post in the ground and placing on it whatever sign somebody thinks would be appropriate. This has been the practice for too many years throughout our various highway organizations, be they state, county, or city, and that is the reason for the development of the *Uniform Traffic Control Manual* and for our own *Indiana Sign Manual*. The sign manual is the first and one of the most important pieces of equipment which the signman must have. No sign crew should be permitted to place any signs until they are familiar with the pertinent sections of the manual and understand its purpose and meaning.

Your attention is further directed to Section 30, Article III of the Uniform Act Regulating Traffic on Highways in the Indiana Statutes which reads as follows:

“The State Highway Commission shall adopt a Manual and Specifications, for a uniform system of traffic control devices consistent with the provisions of this Act, for use on all highways within this State. Such uniform system shall correlate with and so far as possible conform to the system current as approved by the American Association of State Highway Officials. The Commission shall from time to time as it deems necessary, revise, correct and keep up to date, this manual.”

In compliance with this act, the Highway Commission on April 2, 1957, adopted the present *Manual on Uniform Traffic Control Devices for Streets and Highways*. This manual was printed and distributed to all governmental agencies—state, county, and city—in Indiana. This was done in 1958 and was, in itself, no small job.

In the introduction to the *Indiana Sign Manual* it is stated as follows:

“According to Sections 31 and 32, Acts of 1939, Chapter 48, the State Highway Department with respect to State and Federal highways, and local authorities with respect to streets and highways under their

jurisdiction shall place and maintain traffic control devices that conform to the State Manual and Specifications."

Thus all counties and cities in Indiana are mandated to use and be guided by the *Indiana Sign Manual*. It is extremely important that the manual be used and used correctly, because without the use of a standard or guide there would very likely be 92 different systems and standards of traffic control devices on county highway systems in Indiana.

Time has been taken to emphasize the *Uniform Sign Manual* because it is extremely important that its value be recognized. Uniformity must be paramount in all signage and markings and is the only sound basis from which the job of traffic control can be started on any highway system.

After the size and requirements of the traffic control program have been established, the next step is to establish an organization to get the work done. The size of this organization will, of course, vary with the size of the program as required by the road mileages involved, the mileage of improved roads, and the traffic volumes on these roads.

The basic personnel requirement for most counties will be the sign crew. One three-man sign crew properly equipped and properly supervised will be able to perform the actual erection and maintenance of the signage program for all but the larger, heavily-populated counties. This estimate is predicated on experience at the state highway level where, basically, there is a three-man sign crew for each sub-district with approximately 200 miles of highways to sign and maintain. It is realized that all but the smallest counties, such as Ohio County, have many more than 200 miles of highways, but the extent of the signage on the state highway system is enough greater, considering that part of this mileage is urban mileage requiring extensive signage and that there are many state-route intersections requiring extensive sign assemblies and directional signage, that one county crew working on county highway signage can sign and maintain many more miles of county highways than can a state highway sign crew working on state highway signage. This is to say, there are approximately four times as many signs required on state highways per average mile than are required on county highways per average mile.

It is extremely important that one man be designated as the sign foreman. The qualifications of the sign foreman must be such that he will be a person who can plan and supervise the work to be done, understand the basic principles of proper, uniform signage, and can learn and apply the principles as set out in the *Uniform Sign Manual*. He must also have the necessary intelligence and judgment to make

minor adjustments in the field to meet local conditions and yet adhere to the basic principles of uniformity. The success of a sign program depends upon the interest and ability of the sign foreman, so be very careful in the selection of this individual. The best of equipment and material will be worthless unless it is properly used.

The converse of this is also true. You must have good and proper equipment for your sign crew to use. The basic piece of equipment for the sign crew will be the sign truck. This truck should be a minimum of one ton rated capacity with a flat bed on which can be built the necessary sign racks, post racks, tool bins, and small parts bins. The first thought is that a pick-up truck is all that is needed for a sign crew. This, we have found, is not practical because you cannot carry adequate supplies of signs, posts, tools, and men to have a working unit that can go out and erect signs on an efficient basis.

It is necessary to have sign and post racks in the truck to prevent damage to these materials and to assure that different materials are available from the truck when needed. You can actually wear a sign out by hauling it around, unless it is properly racked and protected. The sign crew must also be equipped with wrenches, diggers, post drivers, level, and a step-ladder. The step-ladder is an important piece of equipment as today's mounting heights put the top of most signs above the reach of a man standing on the ground. The level should also be used to assure that the sign posts are plumbed.

Most county highway traffic control operations will, no doubt, be based at the county highway garage, which is generally centrally located in the county. This makes for a good operation as no location in the county is too far away from the headquarters.

It will be necessary that an area at the county highway garage be set aside for use of the traffic operation personnel. In our own state highway district, a 40' x 160' traffic operations building to house the sign shop, provide for sign storage, paint storage, and to house the traffic signal repair shop and office has recently been completed. The building seems to get smaller every day as equipment is moved into it. You will certainly not need that large an area for your county traffic operation but you will need, immediately, a storage area for signs, posts, miscellaneous hardware, and for the sign truck. We have found that this area must be enclosed if any kind of an inventory is to be maintained.

As your signing program progresses, and as the need develops to replace worn out signs, it is possible that you will find it economical to refinish old signs and thereby salvage the cost of the sign blank

material. At this stage, it will be necessary to consider the establishment of a sign shop with the necessary sign stripping cleaning and refinishing equipment. You need personnel to operate the sign shop, and this would probably require two men. It would be only in the larger, highly-populated counties that the establishment of a sign refinishing shop would be justified.

The other major aspect of the traffic control operation is pavement markings. These paint lines can be applied only to those roads which have paved surfaces. The use of centerlines is further restricted to roads having surface widths of 16 feet or more. There are many counties which would have few roads on which pavement markings would be applicable. Pavement markings are, however, a very effective method of traffic control and should be used where needed and where they can be used.

In the smaller counties, where centerline equipment cannot be justified, the necessary pavement markings can be applied by hand or by low cost tube-type gravity paint guns. In counties where the mileage of paved roads and traffic volumes justify it, it will be necessary to establish a pavement marking program, establish a paint or centerline crew, and procure a paint machine of proper size and capacity to economically complete the painting program.

We have found that it costs between \$50 and \$60 per mile to lay a 4-inch paint line. This is based on a seven-man centerline crew, with a three-gun, two-color, truck-mounted centerline machine, one flat-bed truck, and a cone van. This sounds like a lot of equipment and men to put down a painted line, but any centerline painting operation requires manpower to drive the centerliner, to operate the centerliner, to set traffic cones for protection of the wet paint line, to drive the cone truck, to pick up cones, to haul paint, and to shake paint. It requires practically the same manpower regardless of the size of the paint machine. The size of the machine determines the amount of painting that can be done in a day as the larger machines require less down time for refilling.

In the centerline operation there are two key men. These men are the driver and operator of the centerline machine. The remaining manpower can, for smaller programs, be recruited from other maintenance forces and requires no special training.

The other important, and too often neglected, phase of the traffic control operation is maintenance. Too often, devices are installed and then forgotten. Instances of this can be seen on many roads, and this criticism is valid at all levels of the traffic control operation. How many times have you driven by the same rusty, beat-up sign on a road

which you travel frequently and wondered when it was ever going to be replaced? I am sure that this has happened to all of us. I can also state that it is doubly infuriating after you have repeatedly asked that it be replaced and when you know that its presence reflects directly or indirectly upon you and upon the organization which you represent.

The point is, maintenance must be scheduled and performed periodically on all traffic control devices as these devices must be in good condition so that they are effective at all times. This is another requisite which must be fulfilled in order to achieve uniformity. Normal periodic maintenance should be performed by your sign crew and their work should be programmed so that it is performed on a regular basis. There will also be scattered vandalism and damage to individual signs which must be repaired or replaced immediately. All of your county highway personnel can help in this matter. They should be instructed to at least report immediately any damaged signs which they observe in the course of their normal travel over the county.

In summary, the traffic control operation on county highways must be based upon the following points:

1. A plan of the traffic control devices required must be developed to determine the scope and size of the program in your individual county.
2. All signage and other traffic control devices must conform to the Uniform Traffic Control Manual.
3. Legal authority must be established for all regulatory controls.
4. Personnel must be obtained, trained, supervised, and properly equipped to do the job in the field.
5. All traffic control devices must be properly maintained after they are installed.

The application of, and adherence to, these five points on the scale required to meet your own particular county's needs, should provide your county with the traffic control devices necessary to properly control traffic on your highway system.