TG-2 IDENTIFICATION AND SURVEILLANCE

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The identification and surveillance of accident locations has received much emphasis since the passage of the Highway Safety Act of 1966. It is the subject of Highway Safety Program Standard 9 which is "...designed to provide guidance to State and local governments on preferred highway safety practices."(1)

In the traffic records system, surveillance is that part of the system which provides for the systematic collection, review and analysis of the losses experienced in motor vehicle accidents. Surveillance is appropriately defined in Webster's Third New International Dictionary as the "...close and continuous observation for the purpose of direction, supervision or control." At times, surveillance is the systematic collection, review and analysis of the characteristics (erratic maneuvers, brake lights, skid marks, etc.) of motor vehicle traffic operations and requires physical observation in the field.

The authority for Highway Safety Program Standard 9 is contained in Chapter 4 of Title 23, Section 402(A), U.S.C., and reads, in part:

> "(a) Each State shall have a highway safety program approved by the Secretary, designed to reduce traffic accidents and deaths, injuries, and property damage resulting therefrom. Such programs shall be in accordance with uniform standards promulgated by the Secretary. Such uniform standards shall... include...Surveillance of traffic for detection and correction of high or potentially high accident locations..."

The phrase, "surveillance of traffic", can have a number of different meanings. Obviously, it is not the intent of Congress that multitudes of people are to physically observe traffic operations around the clock; although, there may be an aspect of surveillance that requires the physical observation of traffic for short periods of time. The 1966 Act intends, as evidenced by the content of Standard 9, for the collection and review of information about motor vehicle traffic, (e.g. accident records, traffic volumes, traffic violations, etc.) for purposes of exposing those highway locations that have high accident rates or losses. These locations are thus considered to be "identified."

Further, consider the wording in Highway Safety Program Standard 9:

> "Each State...shall have a program for identifying accident locations and for maintaining surveillance of those locations having high accident rates or losses.

1. The program shall provide, as a minimum, that:

   A. There is a procedure for accurate identification of accident locations on all roads and streets.

   B. There is a systematically organized program:

      1. To maintain continuing surveillance of the roadway network for potentially high accident locations."

Standard 9 requires that once these special locations have been identified, they should be continuously monitored to assure that the implemented measures for reducing accidents can be evaluated. This continuous monitoring is really not a separate surveillance activity that is different from the surveillance activity that exposed the hazardous locations in the first place. It is simply the continuous processing of all the collected information for all locations. If indeed, the locations identified as hazardous continue to be hazardous, then the routine surveillance procedures will so indicate.

Standard 9 also states that the surveillance activity should detect not only actual high accident locations, but potentially high accident locations as well. When a particular highway location has high potential, it may not have experienced a high incidence of accidents. It is likely, however, that the surveillance procedures have revealed that a number of locations with similar geometric features do have high accident experience. It is,therefore, reasonable to assume that, in time, most locations with similar characteristics will also prove to be high accident locations.

In addition to the use of accident records for identifying specific locations, there is a type of "surveillance of traffic" that is not dependent on accident records but requires physically observing either traffic operations or the evidence of hazardous conditions in the field. The Traffic Conflicts Technique probably best illustrates this type of surveillance in that brake light activity and sharp vehicle weaving maneuvers are considered as indicators of potential accidents. Other examples of this kind of surveillance are erratic maneuver studies and the systematic observance of skid marks and damaged guardrail sections.(2)

Since it is not the intent of this discussion to provide details concerning the many facets and philosophies of accident location surveillance techniques, some attention should be given to placing the surveillance activity into perspective. Not only can there be many different types of surveillance activities performed in a highway agency (accident surveillance, maintenance surveillance, roadside obstacle surveillance, etc.) but the mechanics of the actual surveillance can vary from the application of a very complex series of computer programs to a completely manual search of a particular set of data files. Actually, the

surveillance effort, however sophisticated, is only a reflection of the ingenuity and capabilities of the user and his understanding of what can be accomplished with the information in the data system. It is not only necessary that the surveillance activity provide valid, usable output, but that the output reflect the actual needs of the user's agency.

Many highway agencies are starting to develop what is commonly referred to as a "coordinated data base." This data base consists of computer stored data files for many different users within a particular highway agency. It may contain accident records, planning inventory data, traffic volume data, records of violations and arrests, maintenance information and many other files. It may be well to note here that the data base does not exist solely for use by those who are a part of the "traffic records community." They are simply users of selected files in the overall data base.

So that the various files may be coordinated with one another, (e.g. accident rates calculated by using the accident file and the volume file for a particular segment of highway) there must exist an index that is common for all of the highway related data. The index or key to the unlocking of the various files is the location reference method that was used to designate the geographic positions of specific locations such as the site of an accident or the point at which the width of pavement changes. If mileposts are in use, for example, then all highway oriented files should be referenced or addressed with milepost notations, thus facilitating the comparison of one file with another.

In summary, there should be surveillance for purposes of identification and then the same surveillance for purposes of monitoring the high accident locations that were identified. The surveillance activity is concerned with accident records as well as other traffic records. The "Traffic Records System" is only part of a Statewide records system which is composed of a data base, common identification index, and various surveillance programs.