

Manpower Allocation and Countermeasure Evaluation

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As a complement to the theme of making better use of transportation facilities, this paper discusses making better use of existing resources to serve those transportation facilities. The resources addressed are manpower and budget allocations. Projects of the Arizona Department of Public Safety are presented.

Analogous to the theme of improved use of transportation facilities is the improved use of existing resources to serve these transportation facilities. The perspective of this paper is, Do not be afraid to innovate.

Traffic law enforcement agencies today are being confronted with increasing demands for service without related increases in manpower and budget allocations to cope with these demands. A new problem has created further complications: decreased fuel availability and increased fuel costs that exceed the funds appropriated for that purpose. Therefore, to cope with the needs for service, law enforcement agencies must seek more efficient and more effective use of the resources at their disposal.

Law enforcement administrators should seek innovative, perhaps unprecedented alternatives and be willing to experiment with alternatives. What is being suggested can be explained by a review of operational experiments of the Arizona Department of Public Safety. The department has a reputation for researching better ways to use both manpower and equipment to provide more and better service to the public. An early example of this was the 1956 Nogales Highway Project. The Nogales Highway, infamously known as Camino de la Muerte (highway of death), is 60 miles of US-89 from Tucson to Nogales. It had an unenviable record of disproportionately reducing the motorist population. The problem lay not so much in treacherous roadway as it did in treacherous drivers.

Highway patrolmen (now part of the department), in studying the accident data, felt they had an answer to the problem. To demonstrate their ideas, they borrowed officers from districts throughout the state for periods of temporary assignment on the Nogales Highway. Special emphasis patrols concentrated attention on the factors that had proved to be predominant in accident causation. Roadblocks were established along the highway so that all drivers could be stopped at strategic times and strategic places.

In the year preceding the project, the Nogales Highway had claimed 35 lives in 26 fatal accidents. In the year after the project, one fatal accident claimed three lives. Injury accidents were reduced by 50 percent and property-damage-only accidents by 29 percent. Continuing modifications in manpower assignment and countermeasure

techniques based on project experience have kept accident rates so low that many people today have forgotten that the Nogales Highway was once the highway of death.

US-66 PROJECT

In summer of 1962 the Arizona Highway Patrol embarked on a similar project on the 381.5 miles of US-66 traversing northern Arizona. This highway varies from approximately 480 to 7,000 ft above sea level. Inasmuch as this is basically a corridor route through the state, during the summer months 80 to 85 percent of the traffic is composed of passenger vehicles with origins and destinations outside of the state.

Accident experience indicated that 45.8 percent of the accidents were noncollision, i.e., running off the roadway, overturning on the roadway, or similar incidents. Inattention and fatigue were predominant contributing factors. Ninety patrol officers, with the aid and cooperation of other public and private agencies, began a four-phase service and fact-finding project that included (a) an in-depth accident investigation, (b) an origin and destination survey, (c) a medical investigation, and (d) an adequate enforcement program.

Surveys indicated that most cars traveled from 301 to 1,000 miles between overnight stops; the mean distance between bed rest was 625 miles. The mean trip length was 1,800 miles, and the average driver was 36.9 years old. Further refinement of data, of little significance for this discussion, was made.

Enforcement efforts concentrated on the most significant accident-causing factors at the most frequent times and locations of accidents. During July and August officers made 20,030 written contacts. In addition, officers assisted 8,001 motorists in need of mechanical or other aid. During these 2 months in the prior year, 218 persons had been injured and 31 killed on this stretch of highway. During the project period, only 100 injuries and 12 deaths were recorded, reductions of 55 and 61 percent respectively.

JOINT ENGINEERING AND ENFORCEMENT PROJECT

As a followup to Arizona's US-66 project, the U.S. Bureau of Public Roads in the summer of 1964 coordinated a similar project in the seven states traversed by US-66 from Los Angeles, California, to Joliet, Illinois. This project primarily involved a special study of the causes and characteristics of single-vehicle accidents and an analysis of the types and volume of police services for motorists and the time spent by officers on such services. Supplementary were studies of police manpower, vehicle speeds, median crossover (for enforcement and service purposes), and traffic information and control signing needs.

Of the 850 single-vehicle accidents investigated, in 781 or 92 percent of these at least one wheel left the pavement or area of normal travel and about four-fifths of these occurred on straight highway sections. Falling asleep was a common factor. Of some significance, perhaps particularly today, was the fact that small cars (under 2,000 lb) were involved 3.5 times as often as standard automobiles, and cars towing trailers were involved 4.5 times more than those without trailers.

Other data developed in both US-66 studies provided information to aid in determining future manpower needs, service needs, and ideas for new accident countermeasures. In addition, the need for engineering improvements to aid both the motorist and those providing service to the motorist was determined.

IMPACT

For 3 years, manpower and countermeasure efforts were concentrated in areas of the most need throughout the state. Certain sections of highway were in practice designated as respond-only areas. That is, no active patrol was conducted on those portions of highway, and officers entered the area only in response to accidents or other calls for service. Careful records were maintained of officers' hours, times they

were away from their assigned beats, and their reasons for leaving their beats. These data were used to illustrate to the department and subsequently to legislative leaders where and how additional manpower needed to be assigned.

The initial manpower increases allocated as a result of these efforts were assigned for purposes of further refinements of the already-begun manpower and countermeasure research. Practical limitations on recruiting, testing, and training prohibited putting the desired number of officers to work all at the same time; however, as a demonstration project those initially hired were assigned to bring specific patrol districts up to desired strength. For some continuity and control the southern corridor route was selected as the project area. This is made up of Interstate 8 from the California boundary to its junction with Interstate 10 near Casa Grande, then continuing on Interstate 10 to the New Mexico boundary. This new project, begun in January 1973 and still under way, is called the interstate model patrol and accident control technique (IMPACT).

Along with the manpower increases, district commanders were given extensive latitude in the use of personnel, equipment, and accident countermeasure techniques. The issuance of tickets or warnings was of no concern. The primary criterion was measured in terms of accident reduction.

In the Yuma district, which contains approximately 150 miles of I-8 plus frontage roads and connecting highways, innovation precluded precedent in the IMPACT project.

In the Yuma district, which has many miles of relatively straight, level roadway and considerable distance between major population centers, a large number of fatigue-related accidents occurred. Before IMPACT, officers would frequently stop drivers because of some form of fatigue-related improper driving and often issued traffic tickets or warnings for the specific violations committed.

It was hypothesized that issuing tickets sometimes motivated the drivers to stop and rest but, more often, aroused them temporarily or even angered them, and they continued until they again became drowsy and possibly became involved in an accident farther down the roadway. Officers were counseled to approach the problem more toward the prevention goal than toward enforcement. The goal was to motivate the fatigued driver to stop and rest by whatever means necessary. We preferred that the officer not write a ticket, except as a last resort when drivers flagrantly disregarded the hazardous potential of their condition. Final statistical analyses have not been made, but observations by officers involved tend to indicate that this philosophy is producing some positive effects.

A second break with precedent involved which roadways the officers patrolled. Although having statewide jurisdiction, highway patrol officers in Arizona were routinely responsible for patrolling only the state and federal highway system. The Yuma area has a unique network of roadways—crossing and paralleling and zigzagging state and federal highways that access and interconnect numerous well-traveled roadways in the county and city road systems. This area also has its share of problems with motorists driving under the influence of alcohol. A local origin-destination survey was conducted among drinking drivers involved in accidents or stopped for violations on the highways. From this information, we determined most probable routes of travel of problem drinkers en route to the state highway system, and officers were directed to perform active patrol and enforcement on those routes, even if off the state system, in an effort to counter the overall accident problem on the system. Because of manpower limitations, officers were not actually assigned to these county or city roads, but they performed selective enforcement while traversing selected routes between points on the state system. The efforts shown resulted in increases in DWI arrests and some reduction of DWI accidents.

OTHER CONCERNS

In coping with accidents or incidents, law enforcement agencies must consider the goals of both rendering effective and timely aid and restoring normal flow of traffic or providing temporary alternative facilities. Situations vary from the need for assist-

ing an ill or disabled motorist on a lonely stretch of highway to the more major concern of finding food, lodging, or medical aid for hundreds of motorists temporarily stranded by natural disasters such as a sudden, unexpected severe snowstorm.

Officers may routinely patrol in nonpatrol vehicles such as four-wheel drive pickups, snow scooters, snow cats, airplanes, helicopters, and even fully equipped ground ambulances. Even these, however, may not be sufficient for all emergencies, and agencies should make some contingency plans for potential emergencies.

Contingency planning should include the development of a list of resources available from other government and private agencies and development of a cooperative working relationship with key personnel in those agencies. Conflict can be avoided at a critical time by agreeing on duties and responsibilities during an emergency in advance. Clarification of responsibilities may be made through cooperative agreements or may even involve legislation. What is important is that the essential planning be accomplished before the emergency occurs.

However comprehensive the planning and however sophisticated your resources, situations that you have not been specifically prepared for will still occur. When this happens, evaluate the problem, assess the resources available, and innovate.

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