NORTHWAY EMERGENCY TELEPHONE SYSTEM

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ABRIDGMENT

•THE NEED to provide for the safety and convenience of disabled motorists on limited-access highways is receiving considerable attention from state and federal highway agencies. The attention is certainly warranted because 85 percent of the planned 42,500-mile Interstate highway system lies in rural areas. Many of these areas are sparsely populated and completely lacking in motorist services, and service facilities are banned from the Interstate highways themselves by the U. S. Highway Code. In the event of accident, illness, or vehicle failure, the motorist is almost entirely dependent on assistance from a passing motorist or police vehicle. Quite often the delay while waiting for service is unreasonably long and may, in the event of a serious accident, result in a loss of life.

Many types of communication systems have been developed and tested, and some have even proved to be effective in an urban environment; however, their application to a rural area is very much in question. During the construction of the Adirondack Northway, which travels through urban, suburban, and remote rural areas, New York State realized the need to provide assistance to the motorist and, after considering the available systems, installed a 2-way voice communication system with telephones spaced at ½-mile intervals on each side of the highway.

The monetary investment in this system plus the uniqueness of this application of telephones led to a research study to evaluate the effectiveness of the Northway Emergency Telephone System (NETS). The objectives of this study were to determine the following:

1. The need that Northway travelers have for an emergency communication system;
2. The use of the system by the motoring public;
3. The nature of the relations that are found between the use of the telephone system and parameters, such as traffic volume, trip purpose, trip length, vehicle type, sex and number of vehicle occupants, and time of day when the telephone is used, and that would indicate disproportionate needs for emergency telephones by particular travelers; and
4. The cost and effectiveness of this type of system both to motorists and to public agencies.

Several types of data were required to define the objectives. A survey of stopped motorists was conducted to determine their need for assistance, their knowledge of NETS, and their attitude about how to obtain assistance. A second survey of the general traffic stream defined the characteristics of the Northway travelers and was used to determine the knowledge of the system and the disproportionate needs for the NETS. The last major set of data was the actual calls received at the substations of the state police who were responsible for monitoring the system. Other data such as costs, traffic volumes, police patrol times, and accident records were also collected and used in the analysis of NETS.

The important results of the study are as follows:

1. Eighty-nine percent of the motorists know about the system;
2. Fifty percent of the stopped motorists need assistance;

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3. Eighty-one percent of the people needing assistance would use NETS to obtain the assistance;
4. Approximately 10,000 calls a year are received over the 712 phones;
5. Truckers use NETS at a rate twice as much as their presence in the traffic stream would indicate;
6. Stranded vehicles with females as the only adult occupants have a greater need for assistance but use NETS at a lower rate than males;
7. NETS is used at a higher rate at night, on weekends, and during the winter;
8. The formula $Y = -50.5 + 14.66X$ describes the expected phone use based on 2 years of call experience, where Y is the expected calls and X is the number of million vehicle-miles of travel that occur; and
9. NETS costs the public $0.0125 per average trip (52 miles) on the Northway.

Based on these results, the following recommendations were made:

1. A more extensive educational program should be used to inform the people who were unaware that the system existed and to reinforce the knowledge of the people who forgot about NETS. This could be done through better signing, handing out of brochures at each terminal of the highway, and including information in travel guides.
2. The present name of the telephone system "Northway Emergency Telephone System" should be changed to "Northway Motorist Aid System."
3. A schedule of regulated changes should be established for the service stations that supply the support assistance to the police.

The small cost of the system to the public, in comparison to the many benefits provided to the stranded motorist and to the police agency that has jurisdiction on the Northway, as well as the benefit of security offered to each Northway traveler leads to the conclusion that NETS has proved to be an effective system.