



**DEPARTMENTAL
INFORMATION
EXCHANGE**

PLANNING GUIDELINES FOR MAJOR TRANSPORTATION EMERGENCIES

PROBLEM STATEMENT

The aftermath of a hurricane, flood, tornado, fire, explosion, or car accident can drastically and unpredictably impact the safety and efficiency of any transportation system. To avoid major traffic delays and congestion, as well as risk to life and property, public agencies must strive to save time by coordinating, communicating, and preparing *prior to* a transportation emergency. Traditionally, the preparation for a transportation emergency has been limited to broad statements of highway agency roles and declarations of intent to coordinate within and between agencies and the private sector. Unfortunately, a *detailed* coordination and communication plan often does not appear until after the fact. Effectively reducing this "next time" method of resolution depends upon transportation agencies devising detailed plans of action and training their staffs *in advance*.

OBJECTIVES

The Texas Transportation Institute (TTI) conducted study 1231, *Traffic Management Planning for Evacuations and Major Emergencies*, in cooperation with the Texas Department of Transportation (Tx DOT) and the Federal Highway Administration (FHWA) to produce an emergency planning document for highway agencies. This report illustrates how an agency can develop and integrate a system of preparations into its normal state of operations thus facilitating that agency's ability to maintain and enhance mobility before, during and after a transportation emergency. Through case studies of emergency management and examination of existing emergency plans, the researchers have established four basic planning categories:

- Transportation System Evaluation
- Interagency and Intraagency Coordination
- Resource Assessment and Management
- Public Communication and Notification.

After analyzing the size of the agency and the type or severity of the emergency risk, TxDOT District personnel can improve their emergency response and recovery preparations by following the guidelines detailed in each category.

FINDINGS

Agencies can move toward improving emergency preparedness by first assessing the potential frequency and magnitude of emergency situations



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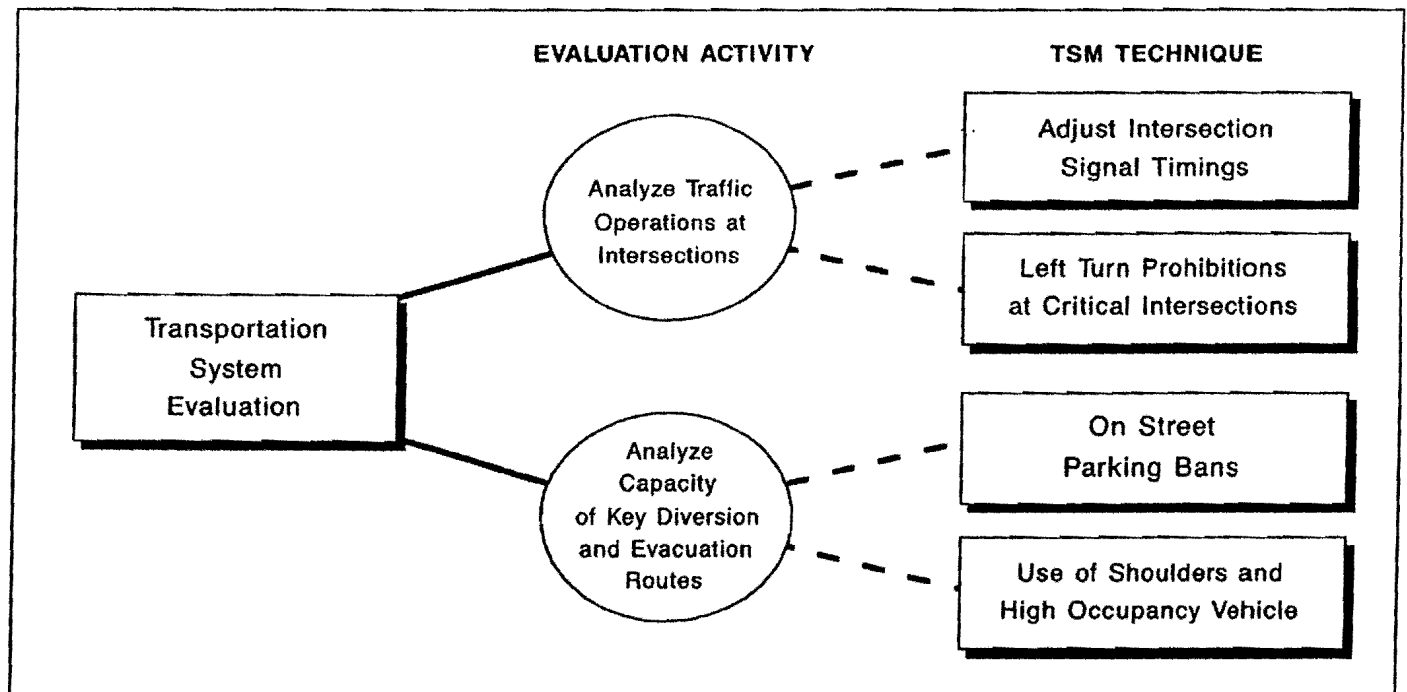
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Specific evaluation activities lead to certain effective transportation system management (TSM) techniques

in their district. This involves examining the characteristics of the region and considering what types of natural or man-made hazards are present. Then, after looking at the type and location of industries in the area, population densities, and the traffic volumes and operating conditions of the different parts of the roadway system, agencies can come closer to predicting the potential impact of a transportation emergency. In general, larger metropolitan areas will require more intense planning and coordination than will less populated rural jurisdictions. However, all agencies should develop an emergency planning framework which reveals the different responsibilities and actions necessary for the time before, during, and after an emergency.

Regardless of agency size, emergency types, or regional characteristics, examination and perfection of the following four activity and planning categories will

improve an agency's ability to cope with transportation emergencies.

Transportation System Evaluation

One of the most basic preparations a highway agency can make is to take stock of the existing transportation system with respect to its ability to function under emergency situations. The above flow chart illustrates how two evaluation activities can lead to effective transportation system management (TSM) techniques. In implementing any traffic management technique, the highway agency must carefully evaluate the safety and operational impact prior to their use in order to avoid liability.

Interagency and Intraagency Coordination

Since most major emergencies are large enough to affect more than one agency, coordination and communication within the agency and with external governmental and private agencies is imperative.

Researchers point to the current effectiveness of informal (verbal) or formal (written) interagency cooperation agreements which indicate the commitment of two or more agencies to coordinate with each other in times of emergency. Secondly, communication between state and local agencies can benefit from a back-up communication system to replace the often inoperable telephone. Thirdly, researchers emphasize the importance of training and retraining agency personnel through workshops, conferences, instructional videos, and mock disaster exercises. It appears that training efforts for emergencies will become more important in the future, particularly from the standpoint of agency liability.

Resource Assessment and Management

Knowledge of what resources are available and where they are located can save precious time and allow response efforts to be more

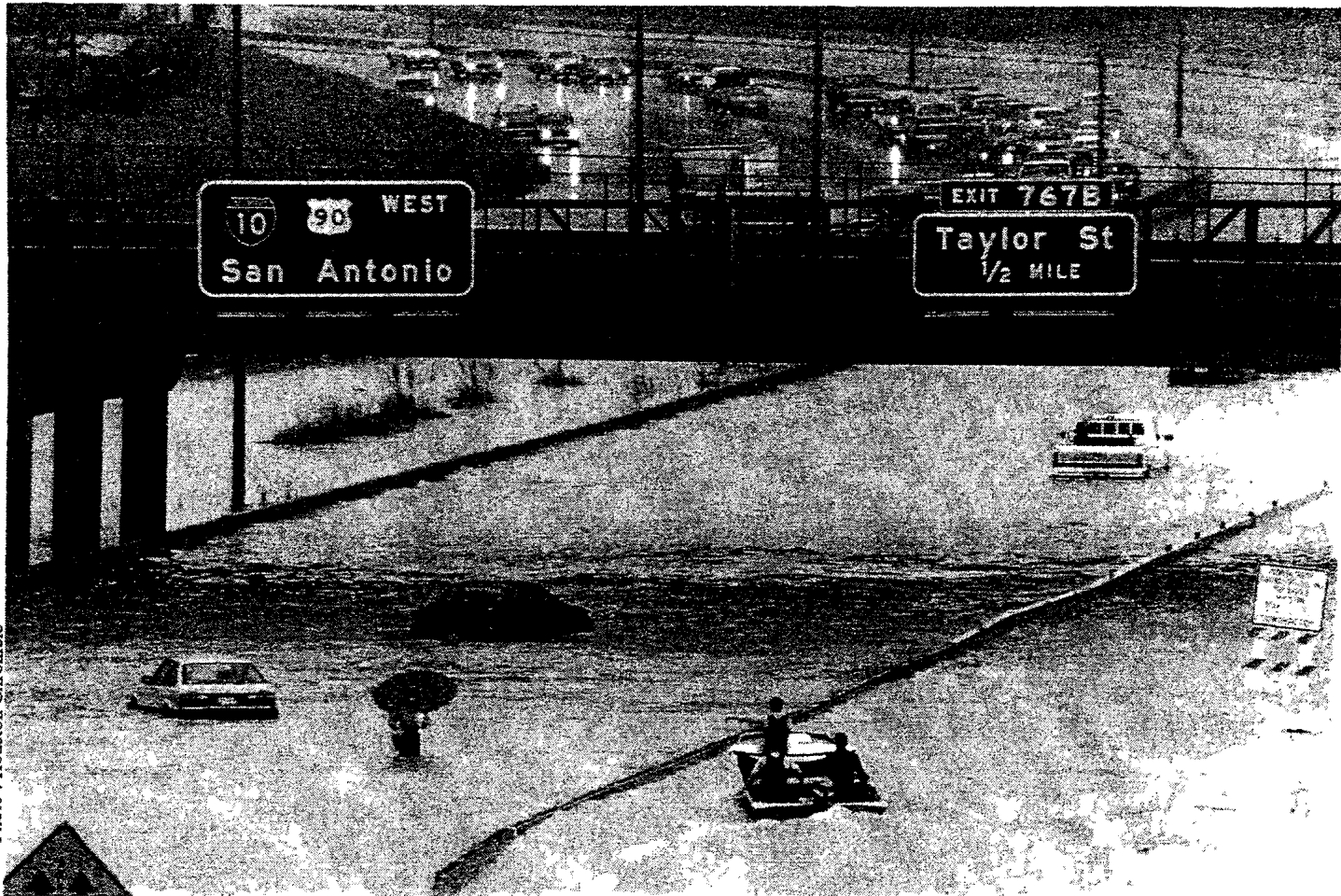


Photo : Houston Chronicle

Severe flooding in Spring of 1992 caused major traffic emergencies along many of Houston's freeways.

effective. Computer technology to keep track of and allocate equipment, barricades, supplies, etc. has provided valuable assistance as agency personnel must often update and manage resources during an actual emergency. Agencies should also be aware of the difficulties in managing personnel during an emergency. Because of limited communication capabilities between personnel and long peri-

ods of work without adequate rest, researchers advise against planning agency response activities and traffic management activities which are solely dependent upon the participation of specific individuals. Emergencies can last hours, days or weeks; therefore, trained people are needed to relieve other workers. During the Brownwood floods, District personnel put in extra hours, some as

many as 30 to 36 hours straight, because of a lack of relief personnel. In addition, highway agencies in areas with high potentials for large-scale transportation emergencies may be well-advised to develop a region-wide resource list to increase awareness of what help may be available from other agencies.

Public Communication and Notification

Highway agencies need to be prepared to effectively collect and disseminate travel information to the public during emergencies. The public wants and needs accurate, timely, and credible information. Information dissemination may occur indirectly, through the media, or directly, with specific

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signing and answering telephone requests for information. While the amount and type of information to be released to the public cannot be established prior to an unpredictable emergency, agencies can ensure that requests will be addressed by appointing a public information coordinator to deal with the media and the public directly during an emergency. Then highway agency personnel can be instructed to direct questions to that individual or the public information office, thereby reducing the potential for inaccurate or conflicting information.

CONCLUSIONS

The appendices of Research Report 1231-3 illustrate case stud-

ies of how two Texas highway district offices (Houston/Galveston and Brownwood) handled emergencies and how well their preparedness fared under the four basic categories (transportation system evaluation, interagency and intraagency coordination, resource assessment and management, and public communication and notification). In each case, close examination revealed strengths and weaknesses in the agencies emergency preparation planning and management. It may be extremely useful for all agencies to test out their own preparedness using the guidelines in this report.

The Department is developing a training course for TxDOT and other government employees to aid

them in all areas of major transportation emergency preparedness and management.

--Prepared by Kelly West, Science and Technology Writer, Texas Transportation Institute.

The information described in this summary is reported in detail in TTI Research Report 1231-3, "Planning Guidelines for Major Transportation Emergencies," Gerald L. Ullman and N.D. Trout, November 1991. This summary does not necessarily reflect the official views or policies of the FHWA or TxDOT.

