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**A GUIDE FOR**

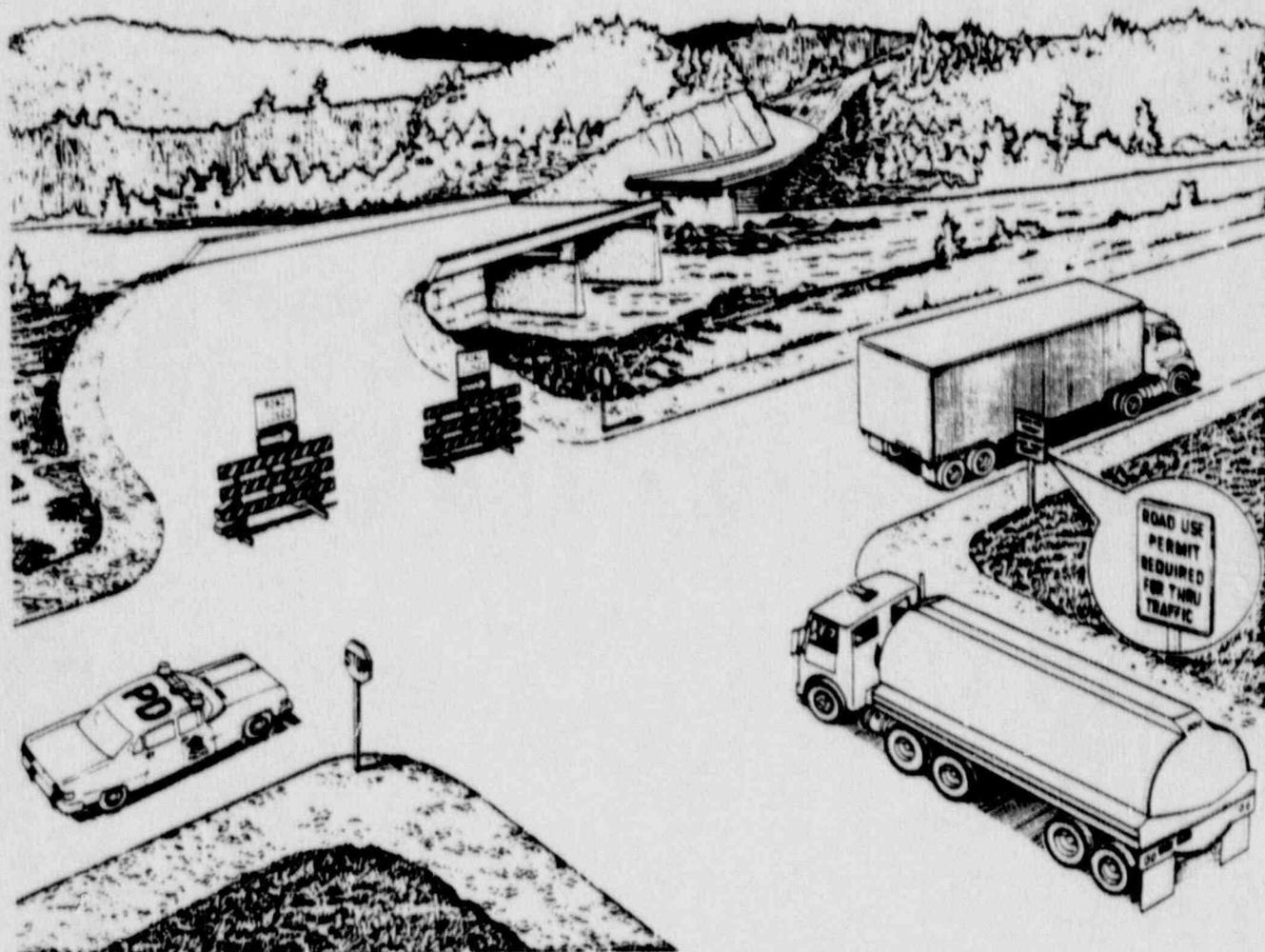
# **EMERGENCY HIGHWAY TRAFFIC REGULATION**

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A Guide for  
Emergency Highway  
Traffic Regulation

1988



U.S. Department of Transportation  
Federal Highway Administration

## **PREFACE**

This publication revises and supersedes emergency planning information previously contained in "A Guide for Highway Traffic Regulation in an Emergency" (1974).

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## GLOSSARY

- "Administrator" means the Federal Highway Administrator.
- "Areas of unrestricted travel" means those areas designated as being safe for travel. Traffic regulation (class "B" or class "C") may or may not be in effect.
- "Blocked routes" means highways which are impassable as a result of physical damage or a radiation level so high that the highway is not usable as a class "A" route.
- "Clear routes" means highways which are available to unrestricted use.
- "District emergency highway traffic center" means the centers designated by a State as subordinate to the State EHTR center and responsible for an appropriate part of the State supervised by the State EHTR center. The title of these centers varies from State to State depending on the State agency responsible for emergency highway traffic regulation.
- "Emergency highway traffic regulation" means a system of traffic management and control devised to regulate the use of highways and to expedite and facilitate essential movements during a national defense emergency or natural disaster.
- "Emergency highway traffic regulation boundaries" means the boundaries of those areas falling within the primary jurisdiction of the State traffic regulation center, the district traffic regulation center, and the traffic regulation sector. The area of the district center is explained in each State plan and differs from State to State. The area of jurisdiction of a sector center is that portion of an emergency highway traffic regulation district which is assigned to the sector by the State highway department.
- "Emergency highway traffic regulation sector center" means the centers designated by the State as subordinate to the district EHTR center and responsible for an appropriate part of the State supervised by the district EHTR centers.
- "Emergency highway traffic regulation posts" means control points at each end of or along regulated routes, for the purpose of controlling the flow of traffic onto or on the route, checking road-use permits, and advising occupants of vehicles of any danger from radioactive fallout.
- "Federal Emergency Management Agency" is the Agency at the national level responsible for discharging the emergency preparedness functions assigned to the various Federal departments/agencies and for providing natural disaster preparedness planning assistance to State and local governments.
- "Highways" means all Federal, State, city, local, and other highways, roads, streets, bridges, tunnels, and appurtenant structures.
- "Highway Users representative" means personnel from trucking associations, State public utility commissions or volunteers from any class of highway users acceptable to the State EHTR organization. This group will augment, as necessary, the personnel staffing State emergency highway traffic regulation centers, district centers and sector centers.
- "Liaison representatives" means military and emergency services representatives at the State traffic regulation center, and at district and sector centers as necessary. They will consult with and submit claims to the highway department, or other State agency responsible for emergency highway traffic regulation, for highway space or for the temporary establishment of class "B" routes as required by their respective agencies.
- "National defense emergency" means all adverse situations affecting the Nations security so recognized by the President, the Congress, or other competent authority.
- "Natural disaster" means any act of nature which is or threatens to be of such severity and magnitude as to cause extensive loss of life, personal injury and/or damage to/or loss of property.
- "Peacetime nuclear accident/incident" means an accident or incident caused by the accidental release of radiological material from a fixed nuclear facility or as a result of a transportation mishap or from a deliberate act of sabotage.
- "Police" means any duly constituted peace officer engaged in law enforcement at the State, county, parish, or municipal level.
- "Radiological defense" (RADEF) means the organized effort, through warning, detection, and preventative and remedial measures to minimize the effects of nuclear radiation on people and resources.
- "Regulated routes" means highways which must be subjected to regulation because of hazardous conditions, special uses, or limited capacity in relation to demand.

"*Regulated routes—class "A"* means highways which lie within an area contaminated by radioactivity that is hazardous to the life and health of highway users. These roads may be used with special guidance precautions and practices.

"*Regulated routes—class "B"* means highways which are temporarily reserved exclusively for military or civil defense movements.

"*Regulated routes—class "C"* means highways which are determined to have, or which are expected to develop, critical traffic capacity restrictions, and on which travel is generally limited to holders of "road-use permits."

"*Road-use permit*" means a legal permit form issued to authorize specific travel over a designated regulated route during a specified time. (Some State plans use the synonymous term "road-space permits").

"*State emergency highway traffic regulation center*" means the center designated by a State as the agency responsible for overall supervision of emergency highway traffic regulation within the State.

"*State Highway Agency*" means that State agency which is responsible for maintaining the various highway systems within that State.

"*State police*" means highway patrol, State highway police, and State troopers.

# Part I GENERAL BACKGROUND OF EMERGENCY HIGHWAY TRAFFIC REGULATION (EHTR)

## CHAPTER I—INTRODUCTION

Our nation is composed of people on wheels. For transportation, they are accustomed to using cars, trucks, or buses anytime they choose, traveling as far as they wish by whatever route they desire. As long as drivers conform to the rules of the road no one normally interferes with their movement nor challenges their right to be on the highway. These travelers accept certain restrictions in emergencies when it is necessary for police to block off local areas in the vicinity of accidents and fires, for example. They also tacitly accept detours established by highway authorities to guide them around road construction, washouts, and mountain slides. In brief, the highway traveler generally will accept control measures that are plainly and understandably presented for his benefit or safety, but he has no tolerance for any artificial restrictions to his freedom to go where or when he wants. Particularly repugnant would be any system imposed upon him which would require him to obtain a permit from government authorities to make any unusual highway trip.

These are the attitudes of Americans in peacetime. But what about a wartime or a natural disaster situation? Transportation assumes more critical proportions. Immediately the traveler thinks in terms of carpools, and gas and tire rationing which were endured in World War II. He reluctantly accepts the inevitability of a repetition of such control measures. There are other problems, however, which Americans did not have to face. The United States was not under attack and nuclear weapons and radiological hazards were not a problem. At Dunkirk, the British faced disaster when hordes of refugees clogged roads and immobilized troops. Transportation of essential material and personnel needed top priority. Out of necessity a system of traffic regulations was instituted and practiced during World War II by the British in North Africa and by the allies in Europe. The United States Army also, by necessity, devised a similar system called by the military "highway traffic regulation."

Defense officials foresaw a need for highway traffic regulation in the United States in the event of a national defense emergency, and requested the then Bureau of Public Roads (now the Federal Highway

Administration) to devise a nationwide system of emergency highway traffic regulation for implementation by *civilian* authorities. Under this system the Bureau furnished guidance to the States in achieving a readiness to perform emergency highway traffic regulation, and to coordinate this function between the various States, including the planning for Interstate directed movements by highway. In the furtherance of this program, the Federal Highway Administration has entered into an agreement with each of the 50 States, the District of Columbia and Puerto Rico which, among other things, requires each of those governments to prepare emergency highway traffic regulation plans and to update them when necessary. Accordingly, emergency highway traffic regulation plans have been prepared following the procedures covered in this Guide.

Briefly, the State EHTR plans envision the allocation of road space for evacuation purposes, and in a post attack period, a survey of the road and highway network for physical damage and radiation hazard. Barricades and warning signs would be placed where needed on those roads which are deemed to be hazardous. Following this, estimates would be made of potential traffic demands and the traffic-carrying capacities of facilities remaining available for use. If emergency highway traffic regulation was deemed necessary in the post emergency period, road-use permits would be issued for traffic movements on routes which otherwise would be heavily congested. These activities would be conducted by the State EHTR organization. Regulation of traffic on the road would be accomplished at strategic checkpoints (posts) on each regulated route section.

It is a basic EHTR principle to allow as much as possible unregulated traffic to use existing facilities during both the pre-and post-emergency periods. Regulation would be instituted only where, and for as long as necessary. The State organization would necessarily continuously adapt and modify its operations to meet the constantly changing situation. For emergency situations, plans would have to be developed for an orderly movement of traffic. The

emergency highway traffic regulation operation must involve a close-working, three-party team as follows:

I. State Highway Agency—Assisted by local emergency service agencies or governmental officials, would establish and sign evacuation routes, establish and support as needed Traffic Control Posts, off-highway holding areas for light and heavy vehicles, maintain traffic counts on essential highways, assess damage to State and local highways as required, estimate traffic demand and traffic-carrying capacity of usable highways, develop and maintain a statewide RADEF system for self-support and develop emergency response plans to cope with natural or man-made disasters affecting the State highways.

II. Highway User Organizations—This group could consist of personnel from the State's Public Utilities Commission (Commerce Commission, Public Service Commission, etc.) or from highway user organizations such as the various trucking associations, for example. For simplicity throughout the remainder of this Guide, this member of the three-party team will be referred to as the "highway users."

Their primary assignment would be to make periodic estimates of potential commercial traffic movements and, under the supervision of the EHTR center to which assigned, assist in issuing road-use permits.

III. State Police—Assisted by local police organizations as needed, the police would actually control the regulated traffic movements that have been authorized by the State EHTR organization.

In close association with the three-party team would be liaison representatives of the local emergency services organization and of the military services. The Federal Highway Administration, identified hereafter as FHWA, while playing an important role in development of emergency highway traffic regulation plans and preparedness, would have discretionary functions in the actual operation; probably only that of coordination among the States where and when needed. The Office of Emergency Transportation is the emergency planning organization in the Office of Research and Special Program Administration that represents the Department of Transportation in this area. Its functions are summarized on page I-8. The role of the military in EHTR is explained in Part III of this Guide.

It is expected that for an extended period following an enemy attack, normally available highway traffic-carrying capacity may be greatly reduced in many areas. At the same time transport demand for essential needs may increase. Some routes could be

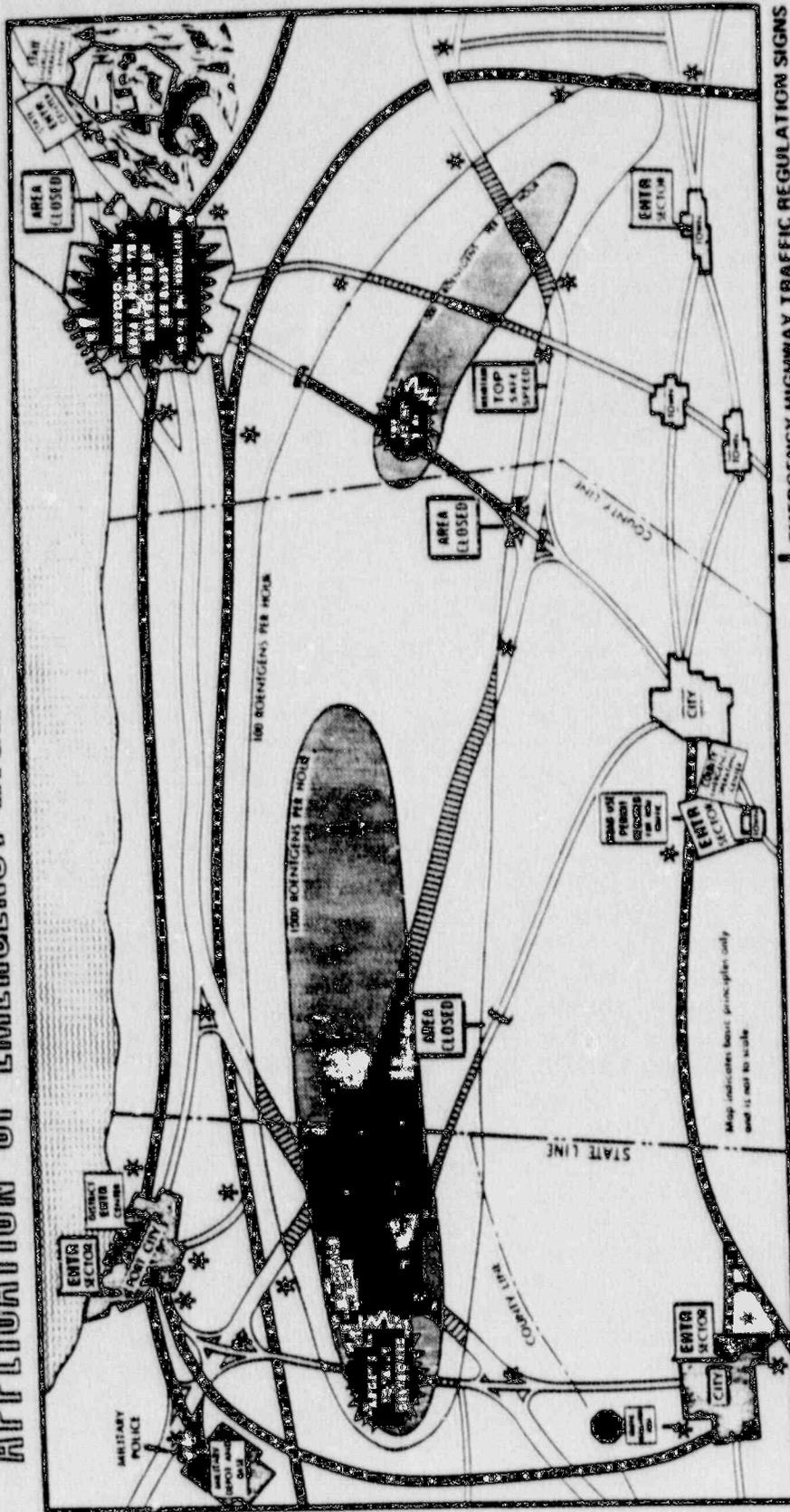
blocked or closed. Some may be wholly reserved for emergency services or military operations. And on some, rationing of road space will probably be required in order to give appropriate priority to traffic movements essential to survival of the population and to restoration and maintenance of industry and the national economy. Some indication of the effects of a nuclear attack on our highway network, and the regulation that would be required to meet traffic needs, is illustrated in figure 1.

Even from this brief introductory resume, it is evident that highway traffic regulation in a national defense emergency, in these United States, may indeed be a herculean undertaking. Under extreme conditions brought about by a massive nuclear attack, it is possible that as many as 100,000 persons might be engaged, during a considerable period of time, in the struggle to keep essential highway transportation from costly congestion and complete stagnation. The real eventuality, if it should come, may not attain the maximum possible anticipated scale but prudence dictates that planning, organization, preparation, and the recruitment and training of personnel for emergency highway traffic regulation must be rapidly undertaken and carried forward until we have reached a full state of readiness. The only alternative is chaos.

The nature, scope, and operation of emergency highway traffic regulation is discussed at some length in this Guide. This publication has been coordinated with the Office of Emergency Transportation, the Department of the Army, the Emergency Preparedness Committee of the American Association of State Highway and Transportation Officials (AASHTO), Federal Emergency Management Agency (FEMA), and the International Association of Chiefs of Police.

The original draft edition of this Guide was designed to help the States prepare plans which would work effectively, individually and collectively. The function of this revised Guide is two-fold. First, since the Guide has been incorporated by reference in order FHPM 4-7-2-4, it will serve as a tool to aid in the updating of the State's plan through the publication of changing national policies and programs. Secondly, this Guide, when used in conjunction with the State plans, will serve as a logical and effective aid for local level emergency highway traffic regulation training programs. It is obvious that in times of catastrophe, even more than in peacetime, the needs of the nation and its people know no political boundaries or highway jurisdictions. All available roads and streets must be used to best advantage as a continuous, coordinated transportation network. If highways are the arteries of our nation in time of peace, they are more so in time of emergency.

# APPLICATION OF EMERGENCY HIGHWAY TRAFFIC REGULATION



**CLEAR ROUTES**  
Roads, streets, and highways not regulated or restricted

**REGULATED ROUTES**  
CLASS A  
Highways which lie within an area contaminated by radioactivity that is hazardous to the life and health of highway users. These roads may be used with special guidance precautions and practices  
CLASS B  
Highways which are temporarily reserved exclusively for a special purpose, such as military or civil defense movements  
CLASS C  
Highways which are determined to have, or which are expected to develop, critical capacity restrictions, and on which travel is generally limited to holders of "road use permits"

**BLOCKED ROUTES**  
These highways are unusable because of intense radioactivity and/or total destruction

**EMTR POSTS**  
Control points at each end of or along regulated routes for the purpose of controlling the flow of traffic, checking road use permits, and advising occupants of vehicles of any danger from radio active fallout

**CONTAMINATED FALLOUT AREA**  
Radioactivity is invisible, intensity measured in roentgens per hour

**EMERGENCY HIGHWAY TRAFFIC REGULATION SIGNS**

INDICATES OFFICIAL EMTR EXPEDITED MOVEMENT THROUGH RADIOACTIVE AREAS

POST ALL VEHICLES MUST STOP TO BE CHECKED

NOTIFY ALL DRIVERS THAT ROUTE BEYOND IS REGULATED. A ROAD USE PERMIT IS REQUIRED TO PROCEED

AREA CLOSED

BARRICADE AND/OR SIGN CLOSES A HIGHWAY ENTERING A DANGEROUS AREA

ROAD USE PERMIT REQUIRED FOR NON-EMTR

MAXIMUM TOP SAFE SPEED

FIGURE 1

## CHAPTER II—ORIGIN AND EVOLUTION

The emergency highway traffic regulation program as it is now conceived and developed is not a revolutionary but rather an evolutionary program. A brief account of its development is presented here as matter of interest.

Since its inception, the FHWA has recognized the strategic importance of our highways in relation to the national defense and in this regard has consistently worked closely with the military establishment. FHWA had also sought and obtained the full cooperation of all the State highway departments in helping to determine and meet the highway needs of the national defense.

Consideration of highway needs of the national defense, however, was limited for many years to concern for provision of adequate routes for military use and war production service. Enemy invasion was considered almost inconceivable; air, sea, or sabotage attacks were visualized as possibly heavy but presumably localized. The vital importance of an organization program for highway traffic regulation in an emergency was forcibly brought home by the congestion on the refugee-choked roads of Europe in the early part of World War II. Subsequently, highway traffic regulation became a wartime commonplace.

After World War II, however, the subject was given low priority, even though emergency readiness planning in the thermonuclear age was authorized by the Congress in the Civil Defense Act of 1950, in which FHWA, by Presidential Order, was assigned an advisory role.

Interest picked up in 1957 when the American Association of State Highway and Transportation Officials (AASHTO) promised the cooperation of the State highway departments. In 1958, at the recommendation of the Secretary of Defense, FHWA was formally assigned responsibility for developing

an emergency highway traffic regulation program. In 1962 AASHTO approved the participation of the highway users as members of the EHTR team and in 1964 the International Association of Chiefs of Police solicited the support and cooperation of police officers throughout the country.

The Federal Highway Administration position in emergency operations was formally reaffirmed in 1969. Executive Order 11490 (Appendix A) assigning emergency preparedness functions to Federal departments and agencies, directed the Secretary of Transportation to "... develop a capability to carry out, the transportation operating responsibilities assigned to the Department, including but not limited to...

Emergency resource management of all Federal, State, city, local, and other highways, roads, streets, bridges, tunnels, and appurtenant structures, including:

(a) the adaptation, development, construction, reconstruction, and maintenance of the Nation's highway and street systems to meet emergency requirements; and

(b) The regulation of highway traffic in an emergency through a national program in cooperation with all Federal, State, and local governmental units concerned to assure efficient and safe utilization of available road space."

The Secretary of Transportation delegated the above and other highway related emergency responsibilities to the FHWA. This Administration then formally stated its emergency highway traffic regulation responsibilities, with the approval of the Secretary, in a brief statement which appears in FHWA Order 4-7-2-4, Emergency Standby Order-Establishment of Emergency Highway Traffic Regulation (EHTR) (Appendix D).

## CHAPTER III—EMERGENCY HIGHWAY TRAFFIC REGULATION IN THE EMERGENCY PLANNING FIELD

*Advanced planning.* In addition to developing an EHTR organization and operations plan there should be advanced planning of a network of controlled highways. Although routes requiring EHTR cannot be determined until an emergency occurs, use of routes under EHTR can be analyzed and planned in advance. Routes which have a high probability and feasibility for EHTR use can be identified by considering their location, survivability, ease of restoration and functional, service and strategic characteristics. Potential bottlenecks, barriers and other potential problems can be analyzed in advance to speed restoration and EHTR. Control points can be planned, insuring sufficient staging capacity, turn-arounds, permit-issue accommodations, etc. Refueling and other necessary services can also be planned, so that when the emergency occurs EHTR can be activated rapidly and with minimum effort.

The broad field of civil emergency planning includes, from the point of view of enemy attack, two major areas: population protection and emergency resource management.

The Federal Emergency Management Agency (FEMA) administers the United States emergency preparedness Program. In cooperation with State and local governments, FEMA provides planning guidance and financial assistance. In turn, State and local governments develop Population Protection Plans utilizing the concept of Integrated Emergency Management Systems (IEMS). This approach is designed to develop generic plans and functional emergency capabilities for natural disasters, technological hazards and nuclear attack. The objectives of the program are to save lives and protect property threatened by such disasters and hazards. This program approach stresses preparedness elements common to all emergencies and recognizes those elements unique to specific types of emergencies. Response and recovery capabilities common to most emergencies are warning, command and control, resource management, firefighting, search and rescue, evacuation, protective sheltering, lodging and feeding, maintenance of law and order, provision of health and medical services and continuity of government.

Emergency resource management is concerned with the management of resources including communications, construction, housing, economic stabilization, electric power, health, transportation and others. State resource management plans were prepared in accordance with guidelines issued by FEMA, and these are separate and distinct from population protection. The EHTR program is iden-

tified as a resource management program in Chapter 6 of the National Plan for Emergency Preparedness and is not a civil defense program.

An understanding of the time-frame relationship between State government large scale emergency activities and EHTR will be helpful in understanding where the latter fits in the emergency planning field. If a nuclear attack should take place, the program would not be activated until radiation levels have decayed to the point where shelter emergence is feasible. As a resource-oriented program, the EHTR post emergency program will commence when the State emergency resource management plan becomes operative in support of FEMA.

In view of the above information and the agreement signed by the States to cooperate in emergency preparedness planning for the highway resources, virtually every State has prepared separately bound EHTR plans. There are, however, other reasons why it is desirable to have separate plans. Most of the reasons are related to the fact that the users of the plan will not be concerned with other portions of a larger resource management document but will have a specialized interest in the highway traffic regulation phase. Separate plans facilitate training and make for easier emergency use at relocation sites.

Also, the activation of a separate plan is simpler than the activation of a separate part of a larger plan. A separate plan will facilitate the execution of FHWA Order 4-7-2-4, Emergency Standby Order, Establishment of Emergency Highway Traffic Regulation (EHTR). In addition, the existence of separate State EHTR plans will greatly assist the FHWA in the discharge of its responsibilities under Section 1303 of Executive Order 11490.

A copy of each State EHTR plan must be maintained at the national relocation site of the Federal Highway Administration for use in the event of a national defense emergency. Also, the Military Traffic Management Command, Department of the Army, has directed that each Army headquarters commander develop a military EHTR plan and cooperate in the development of State EHTR plans. It is the responsibility of the FHWA, Washington Office, to furnish copies of all approved State EHTR plans to each Army Headquarters Commander.

It is realized that in most of the States the resource management functions and the population protection functions are administered by the same State office. This, of course, is the prerogative of the Governor and naturally no issue is taken with

this arrangement. It follows, therefore, that the Federal Highway Administrator has no preference as to who performs these functions at State level;

however, it is essential that the EHTR plans be so identified and bound separately for the reasons previously stated.

## CHAPTER IV—EMERGENCY HIGHWAY TRAFFIC REGULATION AND NATURAL DISASTERS

Emergency highway traffic regulation could likely be a necessity following a natural disaster (earthquake, hurricane, flood or volcanic eruption) or a technological hazard (hazardous materials transportation accident or nuclear power plant accident). The degree of such regulation will depend on the magnitude and extent of the disaster. Each State plan should contain a provision for the use of EHTR during natural disasters and many do. For example, in the Illinois EHTR plan it states that each Highway district has prepared a district "EHTR plan for a natural disaster." These detailed plans contain an alerting system for various emergencies, names and addresses of key personnel for different areas of the district, a map and a listing of storage locations with material and equipment available at each, a listing of mobile radios and call numbers by area, the location of stockpiles of signs and barricades, and a comprehensive listing of news media capable of disseminating information to the public. These district plans were made in cooperation with the State police and the heads of the leading communities in the district.

The Louisiana EHTR plan also contains a section on emergency highway traffic regulation during natural disasters. This plan refers the reader to the Department of Transportation and Development's Civil Defense Plan for the detailed procedures to be followed.

The Maryland Plan contains the following reference to natural disasters:

"Following natural disasters such as floods, hurricanes, etc., an immediate survey of the road and street networks will be made to determine the extent of physical damage. Necessary signs and barricades will be erected to protect and reroute traffic . . .

Experience to date indicates that damage will probably be limited to an area assigned to a district engineer. The district engineer has the responsibility for survey of physical damage and the initiation of repairs to place the roads affected back into service. District highway personnel and equipment are available for the above action. This policy will continue in the future.

In the event that a large part of the State is stricken, the Maryland EHTR plan will be placed in effect to the degree felt necessary. The activation of the EHTR plan could vary from full implementation to partial (i.e., sector or district) activation. The extent and severity of the disaster will dictate to what degree the plan is implemented."

Federal assistance to repair highways and roads in the 5 year period 1978-1982 may place the need for EHTR in perspective. From FY 78 to FY 82, the FHWA allocated almost \$660 million of Emergency

Repair funds to repair roads on the State-administered Federal-aid system. Another \$140 million was obligated to repair other Federal roads. During the same period, the Federal Emergency Management Agency provided State and local governments with assistance to repair over \$200 million of damage on non-Federal-aid system roads. These figures do not include the multi-million dollars in damages that did not qualify for Federal assistance. Yet all required some degree of EHTR.

As in Maryland, the degree of EHTR required depended on the severity and extent of the disaster. They ranged from localized storms causing localized damage to cataclysmic events causing widespread damage. Hurricane Agnes in 1972 and the Mount St. Helens eruption in 1980 are two major disasters worthy of note. The Mount St. Helens eruption not only closed roads, bridges, and highways in the immediate vicinity, but also closed roads and highways from Oregon and Washington to Idaho and Montana by spewing ash throughout the Northwest. Hurricane Agnes was more damaging. Causing more recorded damage to public and private property than any other storm in U.S. history, Agnes damaged and destroyed almost 1200 bridges in the four most-affected States. In Pennsylvania alone, 718 bridges were either destroyed or knocked out of service.

In addition to extraordinary emergency regulations needed to control traffic on or around damaged roads and bridges, emergency regulations were also needed for the movement of special-use vehicles to Mt. St. Helens' and Agnes' disaster sites. Oversize and overweight dredging equipment had to be quickly moved from Florida to Washington to dredge ash-clogged rivers that threatened to destroy major bridges. 18,500 oversized mobile homes had to be quickly moved through 37 States to those that Hurricane Agnes left homeless. Special permit handling, relief from length, width, and weight restrictions on vehicles, scheduling of allowable travel times, and coordination of flagmen and escort vehicles were required in each State.

Natural disaster EHTR in States as diverse as Alaska, Florida, North Dakota, and Pennsylvania will vary greatly. It is not feasible, therefore, to spell out detailed guidelines for this type of regulation in this publication. Because the size, topography, population, and highway system of each State varies so greatly, this type of regulation is better left to the individual State emergency traffic regulation planning officials.

## CHAPTER V—ORGANIZATIONS INVOLVED IN EMERGENCY PLANNING

### THE FEDERAL EMERGENCY MANAGEMENT AGENCY

The Federal Emergency Management Agency (FEMA) is the focal point within the Federal Government for emergency management activities relating to both peace and war. FEMA works closely with those who are involved in emergency management at all levels of government and in the private sector to increase our Nation's preparedness to respond to emergencies of all types. FEMA's mission is a humanitarian one—to save lives, to reduce suffering and loss of property, and to provide an improved basis for recovery from natural, technological and war-related emergencies.

FEMA's mandate from the President and the Congress requires that it prepare for and respond to the full range of emergencies. This includes such hazards as earthquakes, floods, hurricanes, tornadoes and large-scale hazardous materials incidents. It also includes conventional war and the possibility of nuclear weapon threats, attacks, or accidents as they affect the civilian sector of our society. Whatever the extent of the destruction caused by any of these events, FEMA's mandate requires that it endeavor to assure that the resources of the Nation are brought to bear effectively to cope with such contingencies. Since many emergencies are best dealt with at the State and local level, FEMA supports community efforts by providing resources and guidance, always being ready to respond when the situation overwhelms local capabilities. FEMA's role is based upon the simple wisdom that it is prudent to be prepared to do the best one can regardless of the nature and severity of the emergency situation.

FEMA's activities include:

- Coordinating civil emergency preparedness for nuclear attack, nuclear power plant accidents, and nuclear weapons accidents.
- Ensuring continuity of government and coordinating mobilization of resources during national security emergencies.
- Supporting State and local governments in a wide range of disaster planning, preparedness, mitigation, response, and recovery efforts.
- Coordinating Federal-aid for presidentially declared disasters and emergencies.
- Providing training and education to enhance the professional development of Federal, State, and local emergency managers.

### THE OFFICE OF EMERGENCY TRANSPORTATION (OET)

The OET currently located in the Research and Special Programs Administration of the Department of Transportation, is solely dedicated to emergency preparedness. It is the primary staff element of DOT engaged in the development, coordination, and review of policies, plans and programs for attaining and maintaining a high state of emergency preparedness. With the active participation of appropriate Secretarial offices, operating administrations external agencies, and industry, the OET oversees the effective discharge of the Secretary's responsibilities in emergencies. The OET ensures that emergency plans are developed and an acceptable state of readiness is achieved in each transportation operating and support agency.

Should a nuclear attack on our nation occur, the OET as a planning agency would probably be absorbed by the Department of Transportation Emergency Organization which would exercise executive management of the emergency functions of the Department, under the direction of the Secretary of Transportation.

### THE FEDERAL HIGHWAY ADMINISTRATION (FHWA)

The first Federal agency concerned with highways, the Office of Road Inquiry, was established in 1893. However, the national influence of it and successor agencies was not fully developed until Congress passed the 1916 Federal-Aid Road Act. This statute, as amended, established the present pattern of Federal assistance to States for highway construction and improvement. The landmark impact of this Act was, however, the requirement that in order for each State to receive Federal-aid funds it must have a highway department with adequate powers, suitably equipped and organized to effectively carry out the duties required by this Act. This requirement generated a strong engineering skill capable of responding to the steadily expanding national highway program.

The Federal-aid program is a cooperative one. The States choose the systems of routes for development, select and plan the individual projects to be built each year, acquire the right-of-way, and award and supervise the construction contracts. The States pay for the work as it progresses and then claim reimbursement from the Federal Government for the Federal-aid share of the cost. The function of the FHWA is to administer this grant-in-aid program and

furnish guidance, control and approval, with respect to the financial obligation of the Government, in each succeeding step of the process.

The Federal-aid highway program operates on a pay-as-you-go basis and its cost is paid by highway users. Most of the Federal highway activities are financed from the Highway Trust Fund, supported entirely by Federal road-use taxes. The Federal tax on motor fuel, and certain other highway-related taxes, go into the Highway Trust Fund and provide the money for the Federal payments to the States. The annual amounts of Federal highway funds to be made available (authorized) to the States are set by Congress, and the funds so authorized are divided (apportioned) among the States according to methods prescribed by law.

The cooperative relationship between the States and the FHWA which has developed over the years is often cited as a model of Federal-State cooperation. This relationship is a logical basis for assigning the guidance and coordination of emergency highway traffic regulation to this Administration. In this spirit of cooperation, the responsibility for the direct emergency regulation of highway traffic has been accepted by the States and each State has prepared a detailed plan explaining how emergency highway traffic regulation will be administered. These State plans have been coordinated by the FHWA in accordance with national guidelines. This program is, therefore, decentralized and in the event of an emergency the role of this Administration would consist of providing advice and assistance to the States as requested and coordination between the States as necessary, to provide for the smooth functioning of this program.

#### **THE INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE (IACP)**

The IACP serves the law enforcement profession and the public interest by advancing the art of police service. Its staff of police management consultants, educators and trainers, highway safety consultants, researchers, and systems analysts develop and disseminate improved administrative, technical, and operational practices and promote their use in police work. Its aims are to foster police cooperation and the exchange of information and experience among police

administrators throughout the world; to bring about recruitment and training of qualified persons; and to encourage adherence of all police officers to high professional standards of performance and conduct.

Traditionally in the forefront of efforts to improve and professionalize police service, the IACP has provided assistance and advice to a large number of police agencies, State criminal justice planning councils, congressional committees and presidential commissions. Because of its broad representation (more than 14,000 members) this association was the logical group to be called upon for collaboration in developing concepts and general plans for emergency highway traffic regulation. The IACP prepared the original text of the section of this Guide which is concerned with the police function in emergency highway traffic regulation.

#### **THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)**

AASHTO is organized to foster the development, operation and maintenance of a nationwide integrated system of highways, and to cooperate with other appropriate agencies in considering matters of mutual interest with the other modes of transportation in serving the public need. To this end, the highway offices of all the States, Puerto Rico, the District of Columbia, and the FHWA have pledged their cooperation: to develop and improve methods of administration, planning, research, design, construction, maintenance and operation of highways to provide the efficient, safe and effective transportation of persons and goods in support of national goals and objectives; to study all problems connected with highway transport and its interaction with other modes of transportation; to counsel with Congress on highway legislation; to develop technical, administrative and highway operational standards and policies needed to carry out the highway program.

AASHTO has a special group within the standing Committee for Maintenance to deal with Emergency Preparedness matters. It is the function of this committee to advise and assist the FHWA in the development of plans, procedures and training in the areas covered by the Emergency Standby Orders which appear in Appendix D.

## CHAPTER VI—ORGANIZATIONS INVOLVED IN EHTR OPERATIONS

### STATE HIGHWAY DEPARTMENTS

Every State has a transportation/highway department, although the name and nature of the Agency vary from State to State. Because of their long experience in cooperating with the Federal Government, their broad operations and large corps of trained personnel, and their considerable managerial and technical capability, the State highway organizations generally have been assigned responsibility by the Governors of their respective States for emergency highway traffic regulation. In some cases, however, another State agency such as the State police has been assigned this responsibility. (In this Guide, when "State highway department" is mentioned it is intended to refer to the State agency responsible for emergency highway traffic regulation, unless the context indicates otherwise). In preparing for and operating emergency highway traffic regulation the State enlists the cooperation and assistance of county and local rural and urban highway departments as necessary.

With only a few exceptions, each State highway department has divided its State into working areas for purposes of administration and operation. In most of the States, these areas are identified as districts or divisions. (In this Guide they are called districts hereafter, but divisions should be understood where applicable.)

These highway districts usually comprise several counties and many are coextensive with county lines. Each has a district central office responsible for all or many of the normal State highway operations in the area, including road location, design, construction, maintenance and repair, traffic signing and signalization. These districts are usually further divided into smaller administrative areas which are responsible for highway maintenance, etc. The logical subdivision, therefore, for EHTR operations is the State highway department district and subordinate offices.

### DEPARTMENT OF THE ARMY

The Department of the Army represents the military services for the Department of the Defense in the development of the concepts and plans for emergency highway traffic regulation. The Army EHTR plans provide for the assignment of a team to each State EHTR center when activated. Upon activation of these centers, these teams will coor-

dinate military movements, arrange for the establishment, when appropriate, of routes which will be reserved for the exclusive use of the military (for the duration of the movement) and/or effectuate the issuance of road-use permits for military movements.

Currently being implemented in a few States is a prototype program identified as Mobilization Control (MOBCON) which will plan, coordinate, and resolve possible conflicts resulting from military moves during mobilization periods. MOBCON provides for a Defense Movement Coordinator (DMC) in each State who will be responsible for developing a master movement plan for any unit moves originating in or traversing the State. The DMC will work closely with appropriate civil counterparts having responsibility for the operations and control of the highways.

MOBCON should eventually be integrated into each State's EHTR plan. The DMC will act as the senior military representative in each of the various State EHTR organizations. Implementation of the MOBCON program nationally should occur by 1989. Until such time as MOBCON is fully operational within a State, the role of the military in EHTR will remain as explained in PART III.

### STATE AND LOCAL POLICE ORGANIZATIONS

The restoration and regulation of traffic in an emergency is the responsibility of each State. Because the Governor has the prerogative of designating the agency having the authority to direct emergency traffic supervision, the police responsibility may vary from State to State, and the Governor will normally delegate the authority for statewide police emergency operations to the commanding officer of the State police agency. Since EHTR is but one of his many duties, the State police commander would usually designate another high-ranking State police officer to represent and direct police operations from the State EHTR center.

Whether police have full or only partial responsibility for enforcing emergency highway traffic regulation, the magnitude of the problems involved requires the full cooperation and coordinated efforts of many agencies and individuals.

Figure 2 illustrates the police "chain of command" for purpose of assigning responsibility, delegating authority and establishing lines of communication in the EHTR organization.

It is important to note the implications of the chain of command illustrated in Figure 2. Although it represents the most logical approach to performance

of the police role, the success of the mission is solely dependent upon the complete devotion of all police agencies involved to a singular purpose. There must be coordination and cooperation among State, county, and municipal police. Each must make his plans to mesh with the total effort. All officers need to be well and uniformly trained in highway traffic regulation during an emergency. Police have many responsibilities. A commanding officer must predetermine what portion of his force will be assigned to emergency highway traffic regulation duties and decide in conjunction with EHTR officials just what those duties are to be. A well-coordinated organizational, planning, training, and operating effort may be enhanced by using already existing groups such as State associations of chiefs of police or the enforcement committee of a State safety council.

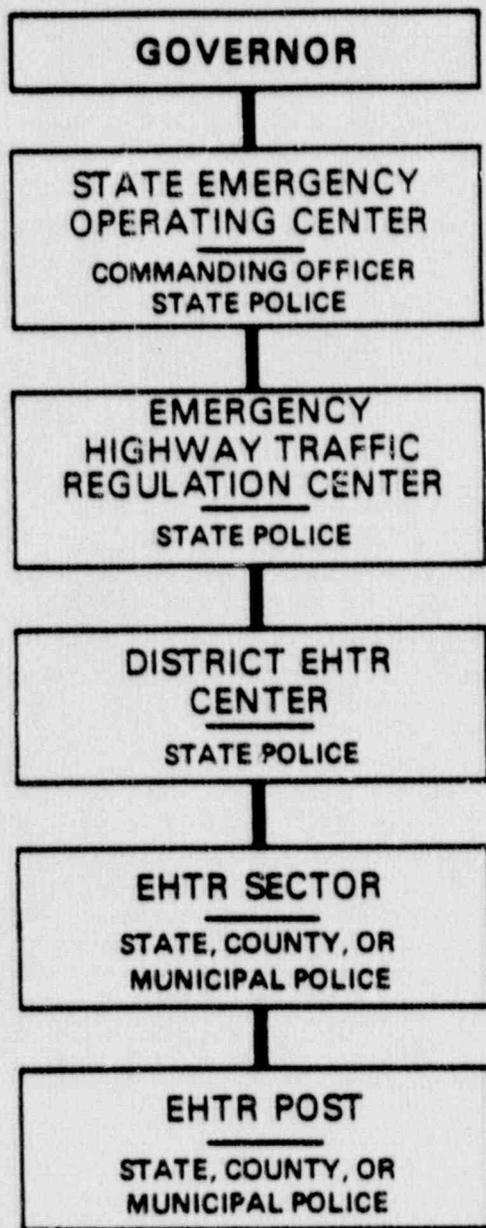


Figure 2—"Chain of Command" for Emergency Highway Traffic Regulation

The decentralized nature of State police operations, communications capability, proximity in some cases to State highway offices and garages, familiarity with routes throughout the State and their experience in handling areawide situations which frequently cross jurisdictional lines makes them the logical organization to assume responsibility for police highway traffic regulation command at the EHTR district level. Below this echelon, command responsibility may be assigned to State, county, or municipal police depending upon the availability of police manpower and the location of the EHTR sectors and posts. The police function at an EHTR sector established in or near a metropolitan area would normally be delegated to a county or municipal police officer. This will also be applicable to EHTR posts serving the sector area. This situation does not preclude the probability that State police or officers of other jurisdictions would be subordinate to such a command.

#### HIGHWAY USER OR REGULATORY COMMISSIONS

Historically the States have accepted the highway user representative as the third member of the EHTR team to work with the highway department and the police as staff members of the EHTR organization. Most State EHTR plans contain an explanation of how representatives of State highway user groups will function as part of the EHTR organization. As highway users, it is expected that the trucking industry will be more than willing to become an active participant in the EHTR organization and participate in peacetime training exercises designed to familiarize trainees with EHTR operations.

Within each State government is an organization which, among other things, regulates the intrastate trucking industry. The titles of these organizations vary from State to State among which are Public Service Commission, Department of Motor Transportation, Commerce Commission, and Public Utilities Commission. Some States are considering using these organizations to discharge the highway user function in the EHTR organization. This concept has the obvious merit of enlisting the support of an existing full-time organization of public employees.

It is important that each State EHTR plan provide for the highway user function and the States should assure themselves that the organization selected can be fully depended upon to participate should the need arise to activate the EHTR organization. This implies a willingness to furnish more than a token participation in peacetime training exercises.



# **Part II EMERGENCY HIGHWAY TRAFFIC REGULATION OPERATIONS**

## **CHAPTER I—FUNCTIONS, EQUIPMENT AND PERSONNEL OF EMERGENCY HIGHWAY TRAFFIC REGULATION CENTERS AND POSTS**

In case a national emergency is declared by either the President or the Congress of the United States, all pertinent Federal emergency plans would be implemented. Certain Federal plans require individual, specific Presidential orders to become operative; but for the purpose of this Guide it is assumed that State EHTR plans will become effective as required in a national emergency.

### **THE STATE EMERGENCY OPERATING CENTER**

#### **Introduction**

Each State has an emergency operating center from which a minimum staff of key State officials would implement emergency plans and carry on essential governmental functions in the event of a national emergency.

#### **Functions**

As soon as a national emergency is declared, the Governor of each State presumably will order the full activation of his State emergency operating center. This center, planned and organized by the State civil preparedness agency, would thereafter be exactly what its name implies; a fallout protected center for emergency operation of the State government.

The State emergency operating center would be the focal point for receiving and disseminating all kinds of information; for contact with the Federal Government; for communication with the general public; and for issuance of directives relating to specific and general emergency functions and responsibilities assigned by established emergency plans. The State operating center would determine when and which kinds of emergency procedures and activities would be undertaken; it would provide information to, and direction of aid and relief for, the State's surviving population. Most, if not all such operations, including emergency highway traffic regulation, would be carried out by previously designated responsible State agencies.

#### **Personnel**

The State emergency operating center would be utilized by the Governor and his advisors, the State civil preparedness director and his staff, and representatives of the regular and emergency State operating agencies. The latter logically would include

the heads or top-level representatives of the emergency highway traffic regulation organization. Under pre-arranged emergency plans and assignments, the Governor probably would invite to the State emergency operating center representatives from those Federal, civil and military agencies that have emergency responsibilities. These individuals would serve in liaison capacities between Federal and State operating centers.

#### **Equipment**

Each State has a fully equipped hardened emergency site. Many States are currently using these centers full-time for peacetime activities with the knowledge that, should a national emergency occur, the peacetime functions would terminate and emergency operations commence. The emergency operating center would be augmented as required and become the focal point for coordination of emergency operations. Whether or not the site is currently in use or not, each emergency operating center has facilities for full-time in-shelter period operations. All necessary sleeping, cooking, sanitary facilities, office equipment, food supplies, medical stores, water and fuel are stockpiled and rotated at predetermined intervals.

#### **Communications**

Without adequate communications it is obvious that an emergency operating center would be unable to effectively carry out its mission. Most such State centers have redundant communication facilities. These vary, of course, from State to State. Some centers, for example, have radio telegraph, radio teletype, land-line teletype, voice radio, etc. In some cases, duplicate standby antennas are stockpiled for use in case a nuclear blast destroyed the existing antenna field. Other States may have comparable but less elaborate facilities. At any rate, it is abundantly clear that each State has recognized the need for and has provided an adequate long-range communication facility for use in both natural and nuclear disasters.

### **THE ALTERNATE STATE EMERGENCY OPERATING CENTER**

Each State should have an established alternate center equipped and available for use in case the primary emergency operating center and/or EHTR Center has to be evacuated.

## THE STATE EHTR CENTER

### Introduction

Each State EHTR plan provides for a State EHTR center. The purpose of this center is to coordinate all EHTR operations within the State.

### Functions

The most important and largest EHTR office, since it will be the nerve center of the entire operation, is the State EHTR center. It would be the first activated after an enemy attack, or other emergency, and, if there is an early warning, it may be activated in advance to provide for evacuation. The State EHTR center should be located as near as feasible to the State emergency operating center, which will be the focal point of all State activities. The State EHTR center preferably should be protected against blast and have an adequate radiological protection factor.

The initial operation of the State EHTR center would be to size up the statewide situation with respect to highways. Information would be available from the State emergency operating center after an enemy nuclear attack or other emergency as to the locations, intensities, and nature of the bomb strikes within the State and the surrounding region. Such information, based on rapidly collected and perhaps sketchy facts, and interpreted by means of precalculated probabilities, should provide with fair reliability the locations of "ground zeros" of each blast. The probable extent of the area affected by heavy destruction and fire damage, and the area exposed to varying degrees of radioactive fallout and contamination would be determined.

The State EHTR center would make final determinations on all matters concerned with emergency highway traffic regulation. This center would direct and coordinate the activities of district and sector centers. The State EHTR center would effect all necessary coordination with adjoining States on matters of mutual concern, having recourse to the Federal Highway Administration for assistance in those instances where mutually satisfactory solutions cannot be developed.

Under the national emergency highway traffic regulation program each State has adapted the diagrammatic representation of a typical State EHTR organization illustrated in Figure 3. The selection of locations for the EHTR centers is a matter of great importance, for once an emergency arises those centers that are needed must be activated without delay and immediately put into full operation.

One of the most difficult and yet most important functions to be performed by EHTR personnel is to acquire, assimilate, and appropriately disseminate

the best information possible for public consumption as it relates to highway traffic. It is essential that the release of this information be coordinated with the State emergency operating center. The real test of a post-emergency recovery is the effectiveness of communication with the surviving population. An effective public information capability will insure compliance with EHTR center policy and directives, facilitate the safe and efficient evacuation of goods and people as well as the prompt and orderly ingress to disaster areas. It will help minimize further injury to survivors and additional loss of life and property. This important function of public information capability would best be performed at the State EHTR center which will be at the tip of a pyramid of information flowing to it from its subordinate centers and traffic regulation posts.

The State EHTR center, upon activation would:

- (1) Identify and evaluate the availability and the traffic-carrying capacity of usable highways, roads and streets within the State, including all those within areas of unrestricted travel and those that can be opened to controlled use through contaminated areas.
- (2) Develop and maintain, in cooperation with the State highway department, a State situation map showing damaged or destroyed highways and highway facilities, and the radiation intensity along highways, particularly those traversing contaminated areas. This map would identify points showing H+1 radiation levels and/or actual readings in accordance with Part IV of this Guide. Aerial radiological surveys may be requested through State or local emergency operating centers when sufficient data is not otherwise available.
- (3) Make all information regarding radiation levels available to the State radiological defense organization, and to the public. The release of this information to the public should be coordinated with the State emergency operating center.
- (4) Inform the public of highways closed by reason of damage or radiation.
- (5) Estimate traffic demand for essential movements for the entire usable highway network.
- (6) Determine the percentage of highway traffic capacity to be reserved at the State emergency highway traffic regulation center for Interstate traffic.
- (7) With assistance from district and sector centers, make periodic traffic counts on main routes to determine whether the traffic volume is approaching the capacity of the route. As the

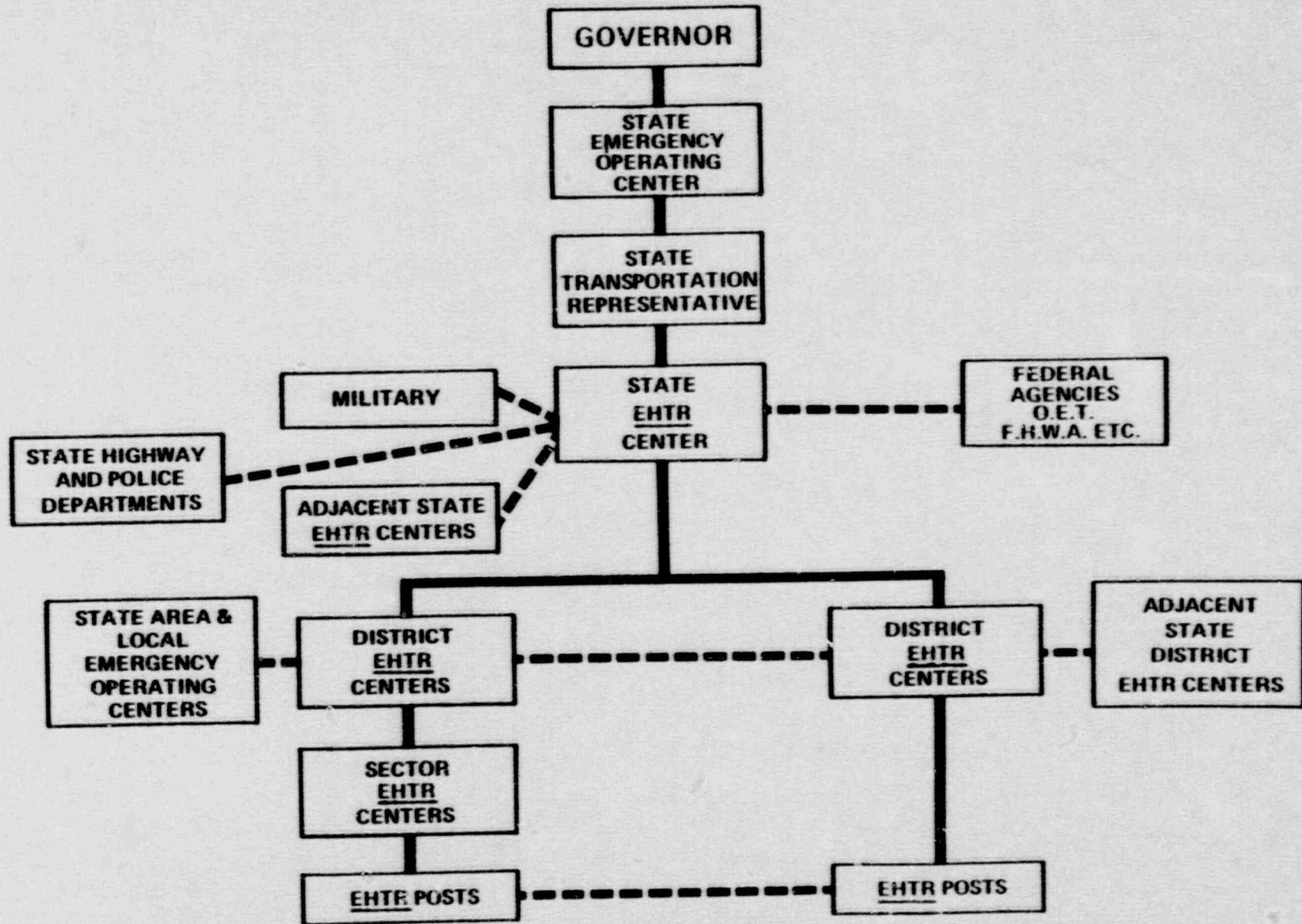


FIGURE 3. Diagrammatic Representation of a Typical EHTR Organization and Operation

volume reaches the capacity of the route, take action to institute partial or complete traffic regulation of the route to ensure the movement of essential traffic.

(8) Erect signs on routes through restricted and unrestricted areas in accordance with this chapter.

(9) Prescribe maximum and minimum speeds in keeping with local conditions. Minimum speeds would be prescribed for routes through radiological areas to reduce the radiation dosage to the driver and other occupants of the vehicle. It is realized that the higher the speed (above 30-35 m.p.h.) the lower the volume that can be handled.

(10) Issue road-use permits for the use of highway space on regulated routes and recognize permits issued in other States for single long trips involving use of highways within the State. Such travel will be allocated to that portion of reserved highway space as provided in paragraph (6) above. (For an explanation of road-use permits see Part II, Chap. II.)

(11) Assign to each regulated route, at the time it is established, an identifying number, letter, or name. The use of existing route numbers, letters, or names as shown on existing State highway road maps is strongly recommended. In urban and/or metropolitan areas street names may be more appropriate than route numbers. The use of well-known existing route numbers, letters, or street names, as modified by attack conditions, will lessen the confusion which would arise were new numbers or other identification suddenly presented to a public suffering from the inevitable shock and confusion following an emergency. These route identifications would appear on all road-use permits issued by State, district, and sector EHTR centers.

(12) Inform all district centers of the regulated routes within their boundaries and the number of road spaces allocated to such centers for issuance of road-use permits.

## Personnel

Upon activation of the State EHTR center, key personnel should be summoned immediately, to this center, in accordance with the current State plan. These would include the upper-level administrative officials; the technical staff—highway and traffic engineers, radiation experts, etc.—who are responsible for assessment and analysis of the general traffic situation and necessary support personnel. Presumably a maximum operations staff

would not be needed immediately at the State EHTR center; but all assigned and recruited staff should be contacted at once. This will serve a dual purpose: it will put the entire staff on alert, either to come to the center or to standby; and it will establish, at least for the moment, who is available and who is not. The staff, especially key personnel, should be forewarned to contact the center on their own initiative if they have not been contacted in a reasonable time.

The initial check and call-up may show the need to summon to immediate duty some substitutes for key individuals who cannot be contacted. The center's roster should include substitutes or alternates for this purpose, and they should be trained to assume their principals' functions.

Personnel at the State EHTR center would be responsible for the administration of emergency highway traffic regulation within the State. Each State plan provides for this function and in most cases identifies this center as an emergency operating center staffed with personnel from the State highway department, the State police and, when feasible, representatives from the highway users.

Since only some of the personnel assigned to EHTR activities would be in uniform, suitable official identification is required for others. When available, the State emergency identification card should be used. In addition, EHTR personnel should probably be provided with a quick-identification device such as an armband or badge with a readily recognizable symbol and/or inscription.

An important record to be kept by the State agency responsible for EHTR is a full, up-to-date roster by job title, rather than name, of all personnel assigned to report to the center, including State highway and police officials, highway users, and military and civil defense liaison representatives. The State EHTR center's list should also include similar listings of the principal staff assigned to each district and sector EHTR center. Each State EHTR plan should contain these rosters.

An alerting system capable of summoning all or selected members of the EHTR staff to the center in rapid fashion should be developed in association with the personnel rosters. Arrangements may also be made for the staff to report to the EHTR center even without notification, in a recognized emergency, or the staff may be instructed in advance to listen to radio broadcasts for general alerts or assignment messages.

## Equipment

It is desirable that the State EHTR center be physically established and equipped now. Ideally, it should be fully stocked with office furniture, equipment, and supplies, communications equipment, and living and feeding equipment and supplies—all in place and ready to use. Where this optimum situation is impossible to achieve at once, it may be accomplished gradually. In any event, every effort should be made to approach full operational readiness as quickly as possible. For example, the State EHTR center may be physically established but only partially equipped and stocked with the remaining needed equipment and materials stored at the State highway department headquarters or warehouse. Some of the equipment in use at the highway department may be earmarked for quick transfer to the State EHTR center when needed. In this case, lists of such items and their locations must be kept current, and adequate plans arranged for their ready identification and quick transfer.

An essential need in the EHTR center would be adequate, large-scale State maps as well as maps of the State's urban areas showing all roads and streets. These various maps should be mounted on the wall, in a suitable location and covered with sheets of clear acetate so that information may be posted, and revised as changes occur. Such maps, properly posted, would give a quick, current picture of both the overall situation and its details.

Ideally, provisions should be made for continuing 24-hour occupancy and operation of the State EHTR center. This requires adequate though spartan facilities for living, sleeping, and eating—and, of course, food preparation—sufficient for the maximum staff anticipated. Thus, floor space is required both for office operations and for living quarters. The office operations would require furniture, typewriters, and other office machines, as well as paper and other office supplies, printed forms, and all the varied equipment necessary for competent office operations. Adequate toilet and washroom facilities are required. For "live-in" accommodations, dormitory-type furniture and bedding are necessary. For feeding, cooking utensils, stove and refrigerator, china and cutlery, etc., are needed. And, of course, food itself, and above all, drinking water, are essentials. In certain States, existing office facilities have been designated for use as the State EHTR center. Should an emergency occur the peacetime functions would cease and emergency operations would begin. In other States, an appropriate area has been designated for activation should the need arise.

## Communications

Highly important in the State EHTR center is a full complement of communications equipment, linking the State center to each district EHTR center, to the State emergency operating center, to the State highway department and State police headquarters, and to the State EHTR centers in adjacent States. Two-way radio, teletype, and telephone communications are all desirable facilities to have, and it would probably be best not to depend on any single system. Interlinkage with the established State highway department and State police radio networks, if such exist, would be extremely useful. Communications are so important to the EHTR operation that, if at all possible, these facilities should be installed in the State EHTR center and maintained on a standby basis.

Each State highway department has an extensive communication capability which enables it to maintain contact with its subordinate units. If emergency communication with contiguous State highway departments has not been coordinated, this vital connection should be established as soon as possible. Each State plan should contain an explanation of its communication capability including its ability to contact the agency in the adjacent States which would be responsible for emergency highway traffic regulation.

## DISTRICT EHTR CENTERS

### Introduction

The State EHTR center must have ready means of accumulating information from throughout the State, of evaluating area and local situations, and of giving general direction to field operations. For these purposes, each State plan provides for EHTR districts to assist in this administration.

To the extent possible, all of the preattack arrangements described previously in particular application to the State EHTR center should also be made for each district EHTR center. If the State highway department's district headquarters itself cannot be located in a properly protected site in which its own operations and those of the district EHTR center can be situated, it would be desirable to plan, and if possible establish in advance a safe and adequate location for use in time of emergency by both the district highway office and the district EHTR center. The emergency operations of these centers are closely related and they will function to best advantage if housed together. Specific arrangements should be made by and for each district EHTR center, adapted to its local situation and problems.

## Functions

The district EHTR center upon activation would:

(1) Receive from the State EHTR center all necessary information and guidance for its operation.

(2) Develop and maintain, with respect to the district a situation map showing damaged or destroyed highways and highway facilities in the district, available detours, and the radiation intensity on highways.

(3) Within limits assigned by the State EHTR center, issue road-use permits for trips originating in the district.

(4) Reserve a prescribed percentage of the highway traffic capacity of each regulated route for through traffic.

(5) With assistance from sector centers, make periodic traffic counts on main routes to determine whether the traffic volume is approaching the capacity of the route. As the volume reaches the capacity, institute partial or complete traffic regulation and notify State and sector emergency highway traffic regulation centers.

(6) Establish sector centers (county, city, or metropolitan area) as prescribed by the State EHTR center, and recommend to the State EHTR center such other sectors as should be established to facilitate the movement of essential traffic.

(7) Inform sector centers of regulated routes within the sector boundaries and the amount of space available to the sector against which it may issue road-use permits.

(8) Coordinate operations with the appropriate State government area emergency operating center.

## Personnel

Much like the main office of the State highway department, the district office is staffed with administrative, fiscal, and clerical personnel, highway bridge, traffic engineers and other specialists. Usually the district office also has a force of equipment operators and mechanics; a fleet of automobiles, trucks, and road maintenance and repair equipment; and a substantial garage and repair shop. Often, the highway districts are subdivided into working areas, each with a headquarters depot or garage for maintenance staff, equipment and materials stockpiling. These depots generally contain a small amount of office space.

## Equipment

Each district EHTR center should have an appropriate amount and similar type equipment to that considered necessary for the operation of the

State EHTR center. In those cases where the highway department district office will be the site for the district EHTR center, adequate equipment should be in place and ready for multipurpose use.

## Communications

Each State highway department district (or division) office has as a minimum capability telephone and radio communication with its central office. Some highway departments have centrex telephone systems in operation. In addition, a few such departments are connected by teletype systems which provide for simultaneous messages to all district offices as well as individual communication. The district office radio capability also includes communication with mobile highway department units. It is expected that the district EHTR center will maintain communication with the appropriate State government emergency operating center.

## SECTOR EHTR CENTERS

### Introduction

The EHTR districts are further divided into EHTR sectors. In the State plans each EHTR sector covers a county or some logical portion of a county. These sector EHTR centers are usually located in State highway department or local highway or police department facilities or in some other preselected site which is available and suitable for the operation of such a center.

### Functions

The EHTR sector centers (county, municipal, or metropolitan area) upon activation would:

(1) Maintain a situation map with respect to the sector, showing the information prescribed to be maintained at the district traffic regulation center with respect to the center.

(2) Make periodic checks on traffic volume and recommend to the District Center the institution of emergency highway traffic regulation as traffic volume on a highway reaches its traffic-carrying capacity.

(3) Within limits assigned by the district center issue road-use permits for trips originating in the sector.

(4) Coordinate requests for inter-sector movements with the district headquarters.

### Personnel

Similar to the district EHTR centers but to a lesser degree, the EHTR sector centers would be staffed with appropriate personnel in accordance with each State's EHTR plan and/or as deemed appropriate by the State EHTR organization.

## Equipment

The sector centers would require all of the working and living furniture, equipment, and supplies which are needed at the district center although probably in different proportions and scale. The need for equipment will be affected by the nature of the activity which will be used for the sector center. If it is a highway department maintenance office one type of equipment will be on hand. If a police department facility is selected by the State for a sector center a different type of equipment will, of course, be available.

## Communications

Depending on the State plan, the sector centers may be located in highway department offices, police facilities, or some other logical location. Whatever communication facilities are available must be supplemented, if necessary, so that a constant communication may be maintained with the district EHTR headquarters and those EHTR posts under the control of the sectors as well as the appropriate State government emergency operating center. This plan provides a flow of information up from the sectors and posts through the districts to the State EHTR headquarters.

## Metropolitan Area Sectors

Our metropolitan areas usually comprise a large and congested central city surrounded by populous suburbs and scattered suburban developments organized into larger or smaller political units as cities, villages, towns, etc. The conglomeration is very likely to be situated in several counties, and often in two States. A few have further political complexities since they lie on an international boundary. In such multi-structured metropolitan areas, each political jurisdiction is apt to have its own individual civil defense organization and emergency plans. To the extent that these plans affect highway transportation and regulation, there should be careful coordination on both sides.

In a large scale nuclear attack, many of the large metropolitan areas may be devastated by blast and fire and heavily contaminated by radiation. In such a situation, the function of EHTR in relation to these areas, after shelter emergence, would be to arrange for safe and adequate bypasses.

Because of the size, both in area and population, of the metropolitan areas, and their political, economic, and traffic complexity, it would be advantageous to plan for the division of each metropolitan area into several workable EHTR sectors. This will be a necessity when the metropolitan area is divided between two States. For management advantages, it would be best for all sectors covering the metropolitan area (within each State) to be under

the jurisdiction of a single EHTR district; or for the area itself to be constructed as an EHTR district. Closely coordinated planning and operation between all agencies involved are obvious necessities. Many State EHTR plans reflect this planning.

## EMERGENCY HIGHWAY TRAFFIC REGULATION POSTS

### Definition

EHTR posts are control points at each end of or along regulated routes, for the purpose of controlling the flow of traffic onto or on the route, checking road-use permits, and advising occupants of vehicles of any danger from radioactive fallout or other hazard.

### Introduction

The several levels of authority which exist above the EHTR posts are concerned primarily with planning, organizing, and administering the EHTR operation. It is at the EHTR posts themselves where the actual traffic regulation will occur. The police would have the responsibility for the operation and control of the EHTR posts and the traffic on the regulated routes. The detailed functions and operations of the posts are quite different from those of the EHTR headquarters, districts and sectors and for this reason are explained in considerable detail.

### Functions

**Choosing EHTR Post Locations**—As soon as the decision to institute regulation on a route section is reached, it will be necessary to choose locations for roadside control posts and provide for equipping and manning them. Making such arrangements is the responsibility of the EHTR organization, usually at the level controlling the regulation and the bulk of the permit issuance for the particular route section. Generally this would be the EHTR sector center; occasionally, the district.

In the simplest kind of situation (regardless of traffic volume), involving a short route section which has no intermediate inlets or crossings, or at least none of traffic consequence, a control post at each terminus presumably will suffice for control needs. Longer route sections, with intermediate access points of traffic significance, may require additional control posts; certainly they would be needed at intersections along the route where any appreciable traffic may have to be fed onto and off (or barred from) the regulated route.

No arbitrary traffic-volume criteria can be suggested for this consideration, since it is a relative matter, depending on the possible inflow volume in relation to the total traffic volume anticipated on the regulated route, and to the proportion of that total which is operating with priority preference; in addition, the geometrics of the route and its intersections may have a bearing on the matter.

It can be realized from the above discussion that roads crossing or feeding into a regulated route section, if they carry any appreciable traffic, can create problems for the EHTR organization throughout the operation process. The crossing, entering, and leaving traffic has to be taken into account in attempting to estimate the total traffic-carrying capacity of the regulated route. It would also be a factor in total traffic demand; additionally, there may be some cargo priority-certified traffic entering or leaving these intermediate points, and this would have to be reckoned with in allocating road space and issuing road-use permits.

Wherever possible, each terminus and intermediate control post should be established close to a suitable road junction, so that traffic which must be barred from the regulated route may have an available alternate route open to them, even though it may be circuitous.

Almost inevitably, the control posts are going to create traffic bottlenecks just by their very existence. Vehicles would have to be stopped or slowed, even if only momentarily, to check their road-use permits. Many others, arriving on the scene without road-use permits or even unaware of the existence of control on this route or anywhere else, may have to be given an individual (and hopefully brief) explanation of the situation. Some might want to take an alternate route to their destination. Some may want to turn around and head back. Others may want to wait and take their chances of getting a permit, or being allowed to slip into the traffic stream in a slack moment.

Because of these possibilities, control posts on routes with sizable traffic streams should be located where plenty off-the-road parking is available as a holding area. In fact, the post can hardly operate successfully without this. The space may only be a pasture; or, with luck, it may be the parking lot of a big shopping center, industrial plant, drive-in theatre, or athletic field. In addition to space needs, the holding areas will require suitable entrances and exits, as will be evident a little later.

The shoulders along the regulated route, whether paved or not, cannot be used as a holding area. Their use for this purpose would seriously endanger moving traffic; they would not have adequate capacity within a reasonable distance; and vehicles stored on them could not satisfactorily be controlled or shifted.

*Control Post Operation*—The nature of operations at control posts on a regulated route section would depend on the volume of traffic and complexity of the situation, and on the understanding and cooperation of the public. At many locations the problems

discussed here may be of small scale or nonexistent; at others they could be full-blown, indeed.

Essentially, the operation at the control post is to feed road-use permit-bearing vehicles onto the road (or let them continue on it) and to turn others away; taking care of the latter, however, as road space allows. It is for this process that a suitable holding area of adequate size is required at or very near the control post (see Figure 4).

If the display portion of the road-use permit were fastened to the vehicle windshield, its color and a large written-in number would show at a reasonable distance the day of the week and the specific regulated route section for which it was issued. Date and permit hour, also would appear on the permit, but will not be visible except in close-up examination.

A complete check of the road-use permit on every vehicle would almost certainly result in a tremendous traffic bottleneck. For that reason, it is proposed that vehicles bearing road-use permits apparently proper for the day and the route section will be waved on without stopping. It must be remembered that a sizable proportion of the priority traffic may be heavily laden trucks and combinations which, once slowed or stopped, take considerable time and distance to accelerate to road speed. This leads to the further thought that control posts should preferably be located on level ground, and certainly not where an appreciable, sustained upgrade is involved.

While road-use permits will thus be cursorily checked as the vehicles drive by, it would be desirable to pull an occasional vehicle out of the traffic stream, for a closer check. As with peacetime road-regulation checks, the "word" probably would get around pretty quickly.

*Vehicles Not Displaying Road-Use Permits*—Those vehicles that do not have road-use permits for the regulated route section would have to be pulled out of the traffic stream into the holding area without hesitation, regardless of whether they are going to stay or not. It would be impossible to answer questions or give advice to drivers while they are on the road and thus blocking all traffic. And they cannot be permitted to stop at the entrance to the holding area, either, or the same problem would result. Hopefully, the use of advance warning and information signs, or of advance information posts, coupled with news broadcasts or other dissemination to the general public of information about regulated route sections in the area, would keep to reasonable proportions the number of vehicles that have to be diverted to the holding area.

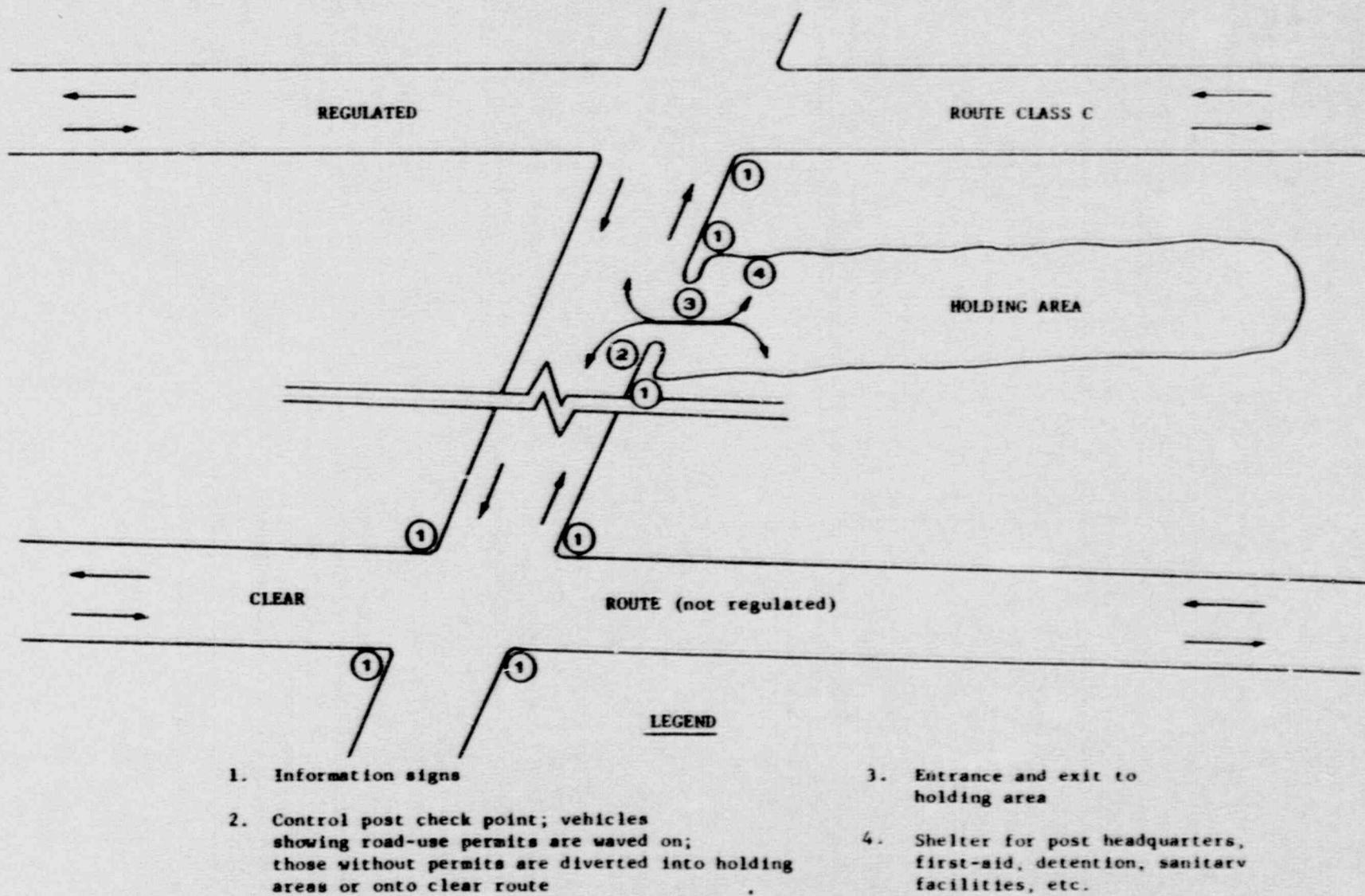


Figure 4—Roadside EHTR control post operation on a high volume Regulated Class C Route.

General experience, however, indicates that regardless of such information devices, the holding area had better be of considerable size on a main route, particularly if there are no or only limited-capacity available "free" routes in the vicinity. Similarly, the work force operating in the holding area would have to be adequate for the task.

Several alternatives will be open to the vehicle operator who does not have a road-use permit and who has been diverted to the holding area. One of these is to take an alternate route to the destination; and the staff working in the holding area should be prepared to give useful, up-to-the minute detour and alternate route information. Coupled with this choice, if taken by the vehicle operator, is the need for suitable exits from the holding area leading to the alternate routes without crossing or interfering with the main-line traffic any more than necessary. Where such crossings are necessary, a police officer should be stationed to direct traffic.

The second alternative open to a vehicle operator who has no road-use permit would be to turn back toward his starting point; that is, to give up the trip altogether for the time being. Again, there must be means for him to exit from the holding area and start his return trip. This may not be a simple operation, because the driver would have to cross the mainstream of traffic going in the direction he originally intended to follow. In addition, once he has crossed that traffic stream, he would want to enter the traffic stream going in the other direction; but this would be the traffic coming from the other end of the regulated route section and presumably already would be running at or near the capacity of the lane or lanes in that direction.

Thus, it will be seen that handling the nonpermit diverted traffic can be a very difficult task, and where traffic volumes are heavy it may require a very sizable, well-organized staff. Even in peacetime, and even then if all drivers were amiable and docile, the job would still be complicated; witness the traffic jams before and after big athletic or entertainment events. In an emergency, and dealing with anxious and distraught drivers, it is going to be perhaps the most taxing, both in planning and execution, of the EHTR operations. In addition to managing and directing traffic, there may occasionally be need for police action against recalcitrant drivers.

A third alternative may be open to the vehicle operator who has no road-use permit: the possibility of obtaining such a permit; or the chance of being "metered" from the holding area into the traffic stream on the regulated route section, if the route is being operated in such a way as to allow this; or his election to take his chances and wait in the holding

area. In the first instance, and in the second if the answer to both "ifs" is affirmative, the vehicle operator should be directed to a special part of the holding area, from which there is a suitable entrance to the regulated route.

Three levels or classes of consideration may exist for those vehicle operators who arrive at a control post without a permit, and nevertheless want to continue.

Among the three levels of nonpermit-bearing vehicle classes, the first class to be considered would be those on an interstate trip for whom permit authority was arranged between the two State EHTR centers, and who had been instructed to pick up the actual permit at the first roadside control post they reached in the State. In some cases the control post staff would already have been advised of the arrangement and have a permit reserved; in others they may have to contact the State EHTR center to verify it.

The second class would be those operators who are making a demonstrably essential trip, but have no road-use permit. Such individuals may have been directed by telephone, by the EHTR center or one of its satellite stations, to go to the control post, because it is much closer to the trip origin; or the individual may not even be aware of the need for a permit. The control post staff would have to make quick decisions in these cases, using their own judgment and without any specific guidelines. Those vehicles accepted as being on essential trips would be fed into the traffic stream as soon as possible.

The third and lowest level or class of operators would be those who have neither priority nor essentiality to justify using space on the regulated route, but still have, in their own mind, at least, a strong reason or desire to make the trip. These, if there is a reasonable possibility of accommodating them, may be allowed to wait in the holding area and take their chances. If there is no reasonable chance of this, however, they should be shunted out of the holding area, either to an alternate route or to return to their origin. It is expected that gasoline rationing or other restrictions on travel will reduce this class to a minimum.

Vehicles in all three of the classes described above, with those of the first and second level getting preference, may be lined up in the holding area close to the entrance to the regulated route. As the control post staff assigned to this location sees that there is a reasonable gap in the traffic moving on the route, they would feed one or more vehicles from the holding area into the mainstream. In this manner, it would be possible to take care of all of the first two classes of nonpermit-bearing vehicles, and a good many of the third class over a reasonable

period of time. The odds are strong that the mainstream traffic past the permit checkpoint would be irregularly spaced and rather slow-moving.

Where regulated routes are operated under regulation only during certain hours, the nonpermit vehicles may be kept in the holding area and released (without permits) when the controls are dropped.

Latecomers; Overloading—The scheduling of road space on regulated routes would be on an hourly basis, and each permit issued would indicate for what hour it is applicable. Those who arrive early or late at the entering control post (and are detected), should be shunted into the holding area, but metered into the route as soon as clear space is available in the traffic stream.

There may be occasions when, through inadvertence, road-use permits have been issued for more road space than is actually available on a regulated route during a particular hour; or the route capacity may unexpectedly and temporarily be decreased; or a sudden and urgent priority need may have arisen after all the space had been allocated. In such cases, the control post staff will have to make whatever adjustments they can, that seem reasonable and will accomplish the purpose. Any permit-bearing vehicles that have to be delayed, however, should be permitted to proceed as soon as possible; if necessary, by preempting part of the next hour and delaying vehicles scheduled for it.

Summary of EHTR Post Responsibilities—The following responsibilities for EHTR posts are taken from State plans or were developed at EHTR training sessions. They should be included as appropriate in the State plans.

- (1) Restrict the use of regulated routes to those vehicles displaying road-use permits.
- (2) Place and maintain as necessary appropriate traffic regulation signs and barricades.
- (3) Maintain where feasible adequate lighting and personnel for 24-hour operation.
- (4) Personnel assigned to control posts on class "A" routes should be sufficiently knowledgeable of radiation hazards to enable them to warn vehicle operators of the dangers of travel through contaminated areas.
- (5) Maintain a communication capability for liaison with the EHTR headquarters responsible for supervising the post.
- (6) Through the exercise of sound judgment, meter into the traffic stream emergency vehicles such as ambulances, fire fighting equipment, vehicles bearing physicians, etc.
- (7) Maintain a suitable off-the-road holding area for vehicles which do not have road-use permits.

(8) Implement procedures for handling nonemergency vehicles without road-use permits which are as follows:

- (a) Send to a holding area for advice concerning availability of another appropriate route.
- (b) As appropriate, retain in holding area with the possibility of metering such vehicles onto the route if light volume traffic develops.
- (c) As necessary, detour to point of origin.

### Personnel

Each State plan provides that the police would have the responsibility of manning the EHTR posts. Naturally, manpower would present a large problem. It is recognized the EHTR would be only one of the many post attack responsibilities which the police would receive.

It would be impossible through current planning to determine how many men will be necessary to serve at these posts. The number will vary with the traffic volume. A low volume post would require a few men to handle the traffic, whereas a complex post with a high-volume traffic would require a larger staff. It is anticipated that the police would receive assistance from the highway department, local civil defense personnel, and such other logical sources as the State may determine is appropriate.

### Equipment

Certain obvious supplies will be needed at EHTR posts. These and others, as appropriate, should be listed in each State plan. Motor vehicles would be needed for the transport of staff, patrolling the regulated route section, or possible pursuit of vehicles not bearing road-use permits which attempt to slip through a busy post. It may be desirable, especially in connection with control posts on heavily traveled routes, to have available such equipment as tow trucks, wreckers, or rescue vehicles and ambulances. Additional supplies such as gasoline, first-aid materials, fire extinguishers, drinking water, and food for post personnel should be on hand. Shelter of some sort would be needed, at least in inclement weather; and sanitary facilities. A supply of road-use permits for emergency use should also be available. Radiological monitoring equipment should be available and, of course, some of the post staff should have been trained in its use.

### Communications

Generally, police have the best existing emergency communication system. Therefore, with some modifications the system can be coordinated with the systems discussed above and used to maximum advantage for EHTR operations. Plans should be developed which will provide emergency adaption. The inventory of communications equipment, per-

sonnel, and facilities will reveal needs. Alternate communication plans should be drawn where possible. Plans should include emphasis on abbreviated or minimal messages and transmission discipline. Acquisition of pack sets and walkie-talkies

is recommended. The great importance of emergency communications demands that greater impetus be given now to increasing communications contact, particularly voice radio, between all police agencies.

## CHAPTER II—REGULATED ROUTES, ROAD-USE PERMITS AND EHTR SIGNS

### Introduction and Definitions

Following a nuclear attack or a natural disaster two main types of usable highways will remain: those that are clear and open without restriction for travel and those that must be regulated in some manner.

Regulated routes are of three types: Class "A", class "B" and class "C". Class "A" regulated routes are highways which lie within an area contaminated by radioactivity that is hazardous to the life and health of highway users. Class "A" routes may be used with special guidance and precautions. Class "B" regulated routes are highways which are temporarily reserved exclusively for a special purpose, such as military or civil defense and users of these routes will not need road-use permits. Class "C" regulated routes are highways which are determined to have or which are expected to develop critical traffic-carrying capacity restrictions and on which travel is generally limited to holders of "road-use permits."

### CLASS "A" ROUTES

#### Establishment of Class "A" Routes

The hazard of radioactivity has its effect in many areas and on many things. On evaluating the radiation effects on highway personnel and highway operations, the Federal Emergency Management Agency (FEMA) principles and objectives are followed by the Federal Highway Administration. (See Part IV.)

The FEMA says in effect—don't expose yourself to any radiation if you can avoid it, unless there is no alternative way of accomplishing your objectives.

This Agency also established the following wartime principles of limiting the exposure of people:

First: Protect them from radiation injury.

Second: Protect them from radiation injury severe enough to require medical care

Third: Minimize the long-range effects of radiation.

The objective is to keep the exposure of the general public to the lowest possible level.

In the final analysis before a command decision to jeopardize lives in any operation is made, one must understand the consequences of radiation exposure.

Consultation with radiological experts prior to such decisions is of utmost importance.

In addition to the effect on human life, fallout would have a detrimental effect on highway transportation, especially when one envisions that most of the country would be covered with radiological fallout if the attack was large and well planned.

The EHTR organization should have personnel trained in radiological defense so that an intelligent evaluation of radiological data can be made. In turn, this information can be used to develop the operational aspects of travel through fallout areas which is necessary for establishing class "A" routes. In this connection, it is recommended that the EHTR organization work in close coordination with the State radiological defense officer and obtain his assistance in this area.

We must keep in mind that highway department radiological monitors, even though they begin monitoring on D+1, will only have a minimum of radiological data; that is, the beginning of the danger zone. The State radiological defense officer would receive radiological data from a variety of sources including aerial monitoring data. His data would be received sooner, would be more inclusive and more complete. Close coordination between the State radiological defense officer and the State EHTR organization is essential.

Within each area contaminated by radiological fallout there would be an infinite range in the degree of danger to exposure, from a slight health hazard at the periphery to perhaps high risk or certain death at the focal center (which necessarily may not be the geometric center of the area). The radiation experts, having mapped the current radiological situation, must next assess the feasibility of road usage within the contaminated area. This assessment would include the potential effects on exposure, taking into account radiation exposure criteria and the characteristics of travel.

The radiation intensity, distance of travel across the area, and anticipated sustained travel speed would determine the radiation exposure to which travelers would be subjected.

Before opening class "A" routes for travel, a number of things must be considered:

- (1) The use of the road (for general public or for special purposes).

- (2) The radiation intensity.
- (3) The distance of travel through the fallout area.
- (4) The total radiation dose received by the traveler.
- (5) The safe speed required for traveling through the area.
- (6) Allowance for breakdowns within the fallout area.
- (7) Frequency of trips.

The control of class "A" routes through fallout areas would vary. Where the radiation intensity is low, the posting of a sign warning of hazard ahead would be sufficient. Where the route is long and/or the radiation intensity is high, a barricade with warning and detour signs would be posted. These routes should be completely closed. Intermediate routes would be opened for special purposes or for the general public, but controlled by EHTR personnel. Personnel operating control posts on a class "A" route should have sufficient knowledge of radiological effects to understand its dangers and provide advice to the traveler. The basic question to be resolved for each contaminated route section is whether it is safe to use at all; and if so, under what conditions. Remembering that radiation is invisible, it is highly important that routes which would be dangerous or fatal to traverse, should be barricaded and posted as quickly as possible. Less dangerous, but nevertheless hazardous routes would be operated under regulated conditions. The regulatory control, based on relative risk, may vary from only a warning sign to pass through the area at a reasonable sustained speed, without stopping, to specification of minimum travel speed or traverse time, trip frequency limitation, or even recommendation to seek medical check-up or attention immediately after crossing the area. For the travelers' information, the distance from the control point to the radiation-free boundary on the other side of the contaminated area should be posted.

Where heavy radiation exists and health hazard is extremely high, the general rule, as stated above, would be to close the route completely. Alternate routes to various destinations should be plotted and posted, if possible, and they should be of sufficient capacity to handle anticipated traffic. Urgent needs, however, may force consideration of the use of a highly contaminated route for certain traffic movements under specified conditions; e.g., that a particular driver travel at a high (but safe) speed and make only one trip. (It is known that rather high radiation exposure can be tolerated for relatively short periods without serious or permanent health impairment.)

Radiation contamination and hazard would be in a continuous state of change. Normal rates of decay are known, so the decline of hazard can be predicted with some reliability. However, shifting winds, rain or snow, and other climatic conditions can bring about gradual or even sudden changes in radiation intensity, sometimes quickly reducing the danger in an area, and sometimes just as quickly bringing danger to an area previously found hazard free. Consequently, frequent field monitoring must be maintained, together with a constant weather watch, so that changes in the radiation situation can be anticipated or at least detected as rapidly as they occur.

Routes endangered by radiation would be regulated by manned roadside control posts if the EHTR organization can muster sufficient manpower. It seems unlikely that there would be enough personnel available for this duty in all cases; their need would be greater on class "B" and "C" regulated routes -- those wholly reserved or available only for priority traffic movements -- and in other urgent activities.

In any event, as soon as the necessity of designating a route for class "A" regulation is determined on the basis of radiological monitoring and analysis, the District or Sector EHTR center should immediately arrange for the placement of barricades and/or appropriate warning and information signs by the highway or police departments.

Manning of control posts on the roadside at the termini of class "A" regulated road sections should be arranged if possible. If only a limited number can be manned, it would be preferable to do so at locations where individual decisions are required. Routes that are completely closed to all travel and, at the other extreme, routes that may be traversed with only small risk, can be barricaded and signed, but not manned. Where an intermediate hazard is involved, a manned post is desirable so that the risk circumstances of each traveler may quickly be assessed. The manning of such posts presumably would be by one or more police officers, through arrangement by the EHTR center. Such control officers should have previous instruction in radiological exposure problems, or at least be equipped with suitable guide material.

## CLASS "B" ROUTES

### Establishment of Class "B" Routes

Class "B" routes would usually be clear routes which means they are exposed to little or no radioactivity. It is conceivable, however, that a class "B"

route may have to pass through a contaminated area. In this case, the portion which passes through the contaminated area will be identified as a class "A" route. The need for designation of class "B" routes is apt to occur quickly after the beginning of the emergency. During a mobilization period or in the initial post-attack period, such movements are likely to be at a peak in frequency and volume. Later, civil defense and military traffic should stabilize and diminish. Since class "B" routes are reserved exclusively for the use of the military and the civil defense, their organizations will not need road-use permits while using these routes.

The movement requirements that engender class "B" route designation may be characterized by the number of vehicles, their overall speed capability, the critical importance of a time schedule and the materials or persons being transported, and the need for a unified or convoy type of movement. Initiation of a request for a reserved route, which may be a specified highway or any route between two designated termini, would probably come to the EHTR center through the civil defense or military liaison officer serving on the center staff.

The need and importance for class "B" movements, certified by civil defense or military authorities, would be accepted by the EHTR organization without question. However, there may be competing priority travel demands and limited route capacities. If so, it would then be the responsibility of the EHTR organization to resolve the competing requirements for road space according to their best judgment and ingenuity.

The size of a single, indivisible movement needs some consideration, and it would be desirable to provide some size criterion for application on reserved routes. However, much depends on the overall speed of which the convoy is capable, and on the nature of the route itself: Obviously, a four-lane freeway can handle a situation better than a two-lane highway; an unobstructed, well-aligned road better than one with existing bottlenecks or attack-damaged pavement and bridges. Thus, it hardly seems possible to generalize with respect to the size criterion for a reserved route.

It seems probable that in most areas, within a short time after an attack, the need for reserved routes would have stabilized or diminished. Time would be less of a factor, and the EHTR organization, as well as the civil defense and military agencies, would be able to plan at least a day or two ahead.

In this situation it is quite probable that route sections would not have to be held wholly in reserve

under class "B" regulation. Two possibilities are likely to offer themselves: either a reserved route may be maintained as such, but opened on an "as-available" basis during scheduled periods for other traffic movements; or the reserved route classification can be discontinued and convoy or other civil defense and military traffic can be accommodated preferentially at all times or during certain periods on class "C" routes.

It should be borne in mind that the unnecessary application of the full-time reservation of a route as class "B" may well place unwarranted restrictions on other essential traffic movements. Before a route is fully reserved for special use, therefore, all alternatives should be considered.

It is expected that civil defense and military large-scale traffic movements would generally be convoy operations planned and controlled by their own organizations. While they would thus manage their own operations, the EHTR organization would provide approval, reserve the highway for use, and provide any coordination with other agencies that may be needed.

Problems of coordination that immediately come to mind are the possibility of demand for road-space time on the same route and at the same time by both a civil defense agency and the military; or the traffic conflict that would result if two convoys were scheduled to cross an intersection at the same time. While urgent movements of this type should not be bogged down in procedural red tape, neither can they be sanctioned without examination of the situation simply because the request comes from the civil defense or military authorities.

## CLASS "C" ROUTES

### Establishment of Class "C" Routes

The determination of contaminated (class "A"), and reserved (class "B") routes by the EHTR organization, and activities in connection with them, are by no means simple functions. Regulation of class "C" routes would be even more difficult and complex, for it would deal with many imponderables and would rely much more heavily on widely scattered information sources and on quick, but hopefully, sound judgment. While highway and police personnel in the EHTR organization can handle problems of blocked and class "A" and "B" routes, class "C" route regulation would require assistance and effort from the highway-user members of the EHTR team.

The probable need for class "C" type of route regulation is fairly evident: The capability of the

highway network would be severely reduced by a nuclear attack. As the nation recovers and transportation needs grow, highway capacity is unlikely to recover as fast as the demand; and in some locations, at least, essential demands alone may equal or exceed the capacity of serviceable highways. Simply put, there would be times and places in the post-attack period—perhaps for an extended time—when road space must be rationed.

Looking for the favorable side of the picture, it is probable that highway transportation would not suffer total paralysis; except in or close to bomb strike locations, much of the route dislocation would be confined to localized problems or specific bottlenecks. Radioactive contamination would decay in time to safe levels, except in or close to the blast area. Also, the need for large volumes of highway transport other than for urgent civil defense and military movements is unlikely to develop until at least some days after an attack. Therefore, there would be an interval during which the EHTR organization could get into high gear, for class "C" route regulation.

How soon the operation would need to begin, how extensive it would have to be, and how long it must continue, are questions which are open to conjecture. But the EHTR organization should maintain as a basic premise that regulation ought to be restrained in scope, extent, and duration to a necessary minimum. At the same time, the EHTR operation must seek to foresee and forestall highway overloading and the delays and interruptions to important traffic movements.

It is the responsibility of the EHTR organization to evaluate both the demand and the capability for highway transportation, and once the decision to regulate has been made, it must regulate or ration road space, route by route and hour by hour, as necessary. Priorities for urgent and essential shipments would be issued by other agencies as explained below.

### **Determining Demand**

It is obvious that estimating the capacity of usable highways in a time of emergency is not the simplest of tasks, but it should present no great difficulty to the engineers who would be responsible for that function. Estimating the traffic demand—the volume of traffic movements—under emergency conditions, however, is quite a different matter. In this task, the organized highway-user representatives recruited to the EHTR organization could play the principal role since they can best establish and maintain close contact with the highway users throughout the State and in the district or sector areas that they would serve.

Information on normal peacetime traffic demand is plentiful and well known to the highway departments, and thus readily available to the EHTR organization. On main highways and arterial streets, the seasonal, weekly, and hourly traffic volumes and fluctuations are on record. Information is also available in many cases of traffic composition (cars, buses, trucks, and combinations), trip lengths, origins and destinations, car occupancy, and cargo characteristics. Much less is normally available for secondary and local roads and streets, but, for all of these, there is an annual 1-day traffic count and generalized knowledge of seasonal fluctuations.

On the basis of such peacetime information, the EHTR staff engineers may be able to form judgments on probable traffic demands in an emergency. Of course, the whole picture, and certainly the local situation route by route, may be altered because of heavy losses and shortages or changed needs. System constructions may shift or concentrate demands elsewhere than their normal channels. Also there is no possible means for anticipating the public's reactions—and actions—in facing the crises of a large-scale emergency. In addition, of course, as activity above bare survival develops in the post-attack period, many of the conventional peacetime traffic demands would tend to reestablish themselves.

So, in trying to estimate the size, locations, and nature of traffic demand in the post-attack period, the EHTR organization's highway and police staff members would be doing their best to apply emergency adjustments to peacetime data. They would make full use of the EHTR field forces to constantly monitor and report on actual traffic volumes and compositions on the road.

It is the highway-user representative on the staff of the EHTR centers that would be expected to do the major job in estimating commercial traffic demand. They should collect whatever information they can on probable traffic movements from all available sources and play the principal part in forecasting route-by-route demand.

The needed traffic demand information can best be collected by the highway-user members of the EHTR staff, to the extent possible, directly from all classes of highway users and traffic generators; and it would be a continuing, daily operation as long as there is a need for class "C" routes in the EHTR unit's jurisdictional area.

Information should be sought not only from the vehicle operators more commonly thought of, such as commercial truck and bus fleet owners, but also from all active and potential traffic generators and attractors. These would include, among others,

manufacturing plants and other commercial enterprises employing or servicing large numbers of people, shopping centers, high schools and colleges, and any other establishments which continue or resume operation in the post-attack period. It would be important to know, for example, that a temporarily shut-down plant is about to reopen and thus generate a flow of automobiles and trucks.

Collecting traffic information from vehicle operators and traffic generators should be developed as a two-way pattern, with the EHTR highway-user team members "pulling" and the road users "pushing." The "pulling" phase simply means that the highway-user members of the EHTR staff would telephone all vehicle-operating companies and organizations and traffic generators they know of—and because of their peacetime positions and activities they are well acquainted with many of them—and ask what prospective road trips they expect to have; e.g., on the following day: How many vehicles and what kinds; what routes will be used; the time of trip; and also, what official priority or practical essentiality there may be for such trips. The "pushing" phase would simply be an information flow in the opposite direction: Vehicle operators will telephone their friends who are the highway-user members on the EHTR staff to inform them of pending or anticipated trips, and ask for advice.

Naturally, the more "pushing" that develops in this two-way pattern, the less "pulling" that will be necessary. For this reason, the peacetime education of vehicle operators in the purposes, and mechanics of EHTR should prove valuable in the eventuality that it has to be put into actual practice.

How often intercommunication between the highway-user members of the EHTR staff and the vehicle operators and other traffic generators is needed would depend on the day-to-day situation with respect to traffic demand versus highway traffic-carrying capacity. It would be especially needed shortly before a route section is expected to reach its operating capacity and class "C" regulation is being considered; and during the entire control period until it becomes evident that such control is no longer needed. During that entire time, it is vital to collect projected trip information in as much detail, and as far in advance as is possible.

Theoretically, contact should be established and maintained between the EHTR organization and all vehicle operators and other traffic generators. However, a practical aspect must be recognized; e.g., it is going to be much easier to contact and obtain information from operators of fleets of trucks and buses—and perhaps the larger, the easier—than it will be from operators of one or a few vehicles. Similarly, it is going to be easier to collect information from commercial operators than from private vehicle owners.

While the private automobile is by far the predominate vehicle on our roads and streets in peacetime, both in numbers and total vehicle mileage, it may be much less so in time of emergency, especially in relation to priority or essentiality of trip needs. Scarcity of gasoline and its rationing are likely to severely curtail nonessential automobile use. As the national recovery progresses, legitimate private car trips may increase; e.g., for carpools to work, etc.

In any event, it will clearly be beyond the capability of the EHTR staff to contact all automobile owners about their trip intentions and needs, either early or late in the post-attack period; and there are no organizations that can speak for them on this subject, except perhaps in generalities. However, there are some possibilities that may develop into practical operations: For example, an industry important to the national economy or defense might obtain priorities for its carpool traveling employees, and report en bloc on their daily trips to the EHTR center.

Within the total traffic demand, no matter how estimates are compiled, consideration of essential needs would be highly important. When the total demand exceeds the capacity of a route, class "C" regulation must be instituted; but rather than a catch-as-catch-can operation, the EHTR organization must see to it that essential traffic movements are preferentially handled. In the emergency situation, and quite probably extending long into the post-attack and recovery periods, there would be an official cargo and personnel priority shipment system for expediting essential and urgent transportation movements.

### **Traffic-Carrying Capacity of Surviving Highways**

It is basic that the EHTR organization, as one of its first operations, must have obtained sufficient information from all available sources to permit recording and plotting the road and street situation throughout the State. The result would be a visual representation, on a large-scale wall map of the road and street network, of those route sections that are impassable because of physical damage or radiation, and those under regulation as class "A" and class "B" (contaminated and reserved routes). The remaining roads and streets presumably are all usable; and from this base a workable transportation system must be patterned. The first concern would be to provide continuity in interrupted or bottlenecked primary and principal secondary routes. This can be accomplished by arranging for quick repair, bypasses, detours, or alternate connections by way of existing adjacent roads.

Intimate knowledge and available records of road geometrics and conditions are prerequisites to this

work of assessing the capacity of surviving highways, and planning for temporary system "patchwork." It would do no good, for example, to map a narrow, dirt road as an adequate detour for a damaged section of mainline highway. Road inventory information is generally available for all State highways; and State and local highway department staffs would be fully acquainted with the status of all roads and streets under their jurisdictions. As a consequence, the selection of detours, bypasses, etc., to provide needed route continuity can best be accomplished as a joint, cooperative effort of the EHTR centers at all three levels, with the collaboration of the State and local highway departments.

It is obvious that the relief section for a blocked route must be adequate for the job or it in turn would become a bottleneck. When full relief cannot be arranged, that is, if traffic capacity adequate for all anticipated traffic demand is not going to be available, then class "C" route regulation, using road-use permits, must be instituted.

So it is evident that in mapping routes and systems for post-attack highway transportation, in reaching decisions on the need for EHTR control of class "C" routes, and in operating those routes, the capacity of the surviving available highway network, especially the primary and principal secondary routes, must be determined. This would be done by the traffic engineers of the EHTR staff.

Traffic-carrying capacity may be estimated, route section by route section, depending on foreknowledge and existing conditions. The geometrics and, in fact the calculated traffic capacities, would be known and on record for most State highways and many secondary roads. However, within affected areas, the suddenly created bottlenecks and the effects of necessary detours and emergency route connections would upset the normal characteristics of traffic flow and must be taken into account. There is a reasonable background of experience in such matters from situations occasioned by construction detours and the aftermath of natural disasters such as floods.

Possibly an even more disruptive bottleneck in emergency route regulation may be the roadside control post itself. While trying to sort out permit-carrying vehicles from others, and expediting the former while turning back the latter, the control post may also create a major turbulence in the traffic flow along the regulated route. Operations planned and executed with extreme care may keep such turbulence at a minimum, but it cannot be expected that traffic would run smoothly past a control post at a capacity rate indicated by geometrics alone. This situation must be reckoned with in estimating traffic-carrying capacity under emergency conditions. There is little experience to use as precedent, although

perhaps route measures can be developed from operations at toll bridges, drive-in theatres, and paid parking lots at football stadiums, etc. Estimating the effect on traffic capacity of the roadside control post may amount to little more than skilled guess-work.

Highway capability may be expressed as vehicular capacity or tonnage capacity. Vehicular capacity relates to the maximum number of vehicles that can pass a given point on the road in a specified period of time under prevailing roadway and traffic conditions. Roadway characteristics that influence the vehicular capacity include: Type of highway or road, number of lanes, grades, horizontal curvatures, roadside clearances, and lane widths. The percentage of each type vehicle in the traffic stream and weather and visibility conditions also influence the traffic-carrying capacity.

While vehicular capacity is the capability analysis most familiar to the traffic engineer, the tonnage capacity of a roadway must be considered. For example, a "parkway" with a pavement structure designed for passenger-car use only, might be under consideration as a heavy truck detour road to a vital industry. The "parkway" may be able to accommodate as much as 10,000 trucks a day if the roadbed is dry or frozen, but during a wet spring thaw after a few heavy truck passages, the roadbed might become impassable.

Tonnage capacity analyses are more familiar to the military. A short Section of the Department of the Army Field Manual 55-15 titled, HIGHWAY CAPABILITY ESTIMATES, is a good reference for aiding the traffic engineer in evaluating routes before and after the disaster, and a copy should be in each EHTR center. The reference for making vehicular capacity analyses is the Highway Capacity Manual, Special Report 209 of the Transportation Research Board. A point to make here is that there will not be time to learn the details of the subject, but there should be a traffic engineer in each center capable of making highway capacity analyses and that at least the district and sector centers should have route logs and other records of the roadway pavement structure and geometrics available for his use.

### The Decision to Regulate

The comparison of highway traffic capacity and traffic need—that is, supply versus demand—would indicate for each route section studied whether and where trouble or potential trouble, in the form of congestion, exists or may soon develop. The EHTR chief, with the advice of his staff, must then make one of three decisions:

- (1) That no regulation is needed, because the trouble is not imminent enough or has a reasonable prospect of being alleviated within a short time.

(2) That some regulation is required, but need be operated only on a partial basis as during specified hours or with the recognition that a considerable amount of non-priority traffic can be accommodated, some of it even during the controlled hours.

(3) That full-scale, full-time control is required, with accommodation limited largely to priority traffic movements, at least during some time periods.

In some cases, the decision to regulate may not come until after the congestion or other route difficulty has actually materialized; but it would be highly desirable to anticipate the need for and institute control reasonably well beforehand, so that serious congestion is averted. Many decisions would be difficult to make, for they will be concerned with questionable information and borderline situations. Two opposing forces could exist in extreme cases: the losses incurred through congestion, if regulation is begun too late; and the inconvenience and wasted effort to shippers and the EHTR organization alike, if control measures are put into effect much too soon or in locations where anticipated congestion does not materialize. The EHTR chief must indeed thread a fine needle.

In the earlier discussion for determining demand for the use of class "C" routes, no mention was made of operating level; that is, whether the decision is made by the State, district, or sector EHTR chief. An inflexible pattern of responsibility does not seem advisable. Of overriding importance is an arrangement to ensure that each office knows what the others are going to do, and that possible conflicts be eliminated before they happen. As a general rule, it is logical for the EHTR office closest to the local situation to make, or at least initiate, decisions to control.

For example, a sector chief may decide that a particular route section will need class "C" regulation by the next day. If the situation is purely local, he should have authority to proceed with the arrangements, but be required to immediately inform his district chief, and adjacent sector chiefs, of his intent. If, however, the need for route control appears to span the entire sector, or extend across a sector boundary, then presumably the district EHTR chief should be responsible for the actual decision or for coordination between sectors. Similarly, a situation that extends to or beyond a district boundary should be the decision-making or coordinating responsibility of the State EHTR chief.

In every case, of course, it is imperative that each EHTR center—State, district and sector—be promptly informed which route sections are going to

be controlled, and when; which are operating under controls, and under what conditions; and which now under control are going to be released. Once again, it is evident that good communications are vital.

When and if the decision is made that class "C" regulation of a particular route is necessary, two considerations are required: One as to length of route to be put under regulation, and the other as to timing.

Individual decision that class "C" regulation is required would usually be related to specific location or limited area, and to a particular route, since in all probability the need would be occasioned by a bottleneck at a single spot or along a short stretch of road or street. Conceivably, control might be instituted on a route extending for many miles; perhaps across the entire State. But this seems less than likely to be a common need, based either on road capacity or traffic demand. In addition, control of a long route might well be difficult from an operational standpoint, and would involve considerable manpower and paperwork.

As a general principle, then, regulated route sections should be no longer than is necessary to ensure that congestion will not develop, because of the control operation itself, at the route section termini.

There may be situations where two route sections which require regulation are part of a continuous major route and are so close together that control as a single unit would function more efficiently. Also, control of one route section may create traffic problems on other nearby routes, particularly those crossing or closely paralleling it. Thus in preparing to make the decision to institute class "C" regulation on any individual route section, full consideration must be given to the consequent effects on other roads and streets in the vicinity.

The decision to institute class "C" regulation is, of course, concerned with a time period in the future. Regulation, whether partial or full scale, cannot effectively be applied at a moment's notice. Roadside traffic control posts must be spotted, equipped, and manned. Requests for road space must be solicited and received, and permits issued or authorized.

A logical and practical system of control operation is what might be called the "folk 'ing-day" pattern (a plan commonly used by the military services), in which preparations are made each day for the following day's operations. In EHTR operation, information collected by the EHTR organization during the morning might indicate that traffic demand may soon exceed capacity on a particular route section. The decision to regulate might be reached by noon. During the afternoon, arrangements would be made for establishing and manning roadside control posts; requests for

road-use permits would be solicited and processed; and information would be disseminated to the general public on the situation. The actual regulation would begin on the road at a prescribed hour on the following day, probably at a very early hour.

A further consideration in timing is the duration of regulation on a particular route section. Sufficient information may be available, or careful judgment may indicate, that control should remain in force for several days, a week, or even a more extended period. This will be an initial decision, of course, subject to amendment as the situation develops from day to day. The extent of control on one route may also be affected by the situation on other nearby regulated routes.

Class "C" regulation may be needed only during certain hours of the day when congestion is likely to occur (for example, the peak-hour surges in and around urban areas) or it may be required for the full 24-hour period. Similarly, it may be required in one or both directions.

Instituting traffic control only during the day or even during just the few heavy-demand hours would greatly simplify the task, both as to manpower and paperwork. In addition, it would very well encourage many highway users to travel in off-peak, no-control periods, thereby actually reducing the peak-period demand.

One other point about timing should be emphasized. The beginning point for class "C" route regulation as a general type of EHTR operation cannot be defined. The needs for class "A" and class "B" route control would arise almost immediately after an enemy attack; but the needs for class "C" regulation are not likely to develop so quickly. Additionally, the EHTR organization may not be sufficiently activated and staffed for managing class "C" route regulation on any extended basis until at least several days after the attack.

### Operation of Regulated Routes

It must be borne in mind that EHTR would be far from a simple and static operation. Many of the situations and operations described in this Guide are necessarily treated as individual subjects, but in practice many will be simultaneous, interacting, and sometimes in conflict with each other.

Routes wholly reserved for essential movements (class "B") and those operated on a road-use permit basis (class "C"), may also be exposed to radiological hazard. Class "C" routes may be operated as such only part time or they may be reserved during certain periods for class "B" use. Post-attack traffic

needs will fluctuate; physical conditions will improve or worsen; radiation hazards will decay and shift; planned road repairs will be completed or deferred. It is thus evident that EHTR operations would be in almost constant state of flux. Only by having full and current information posted on the maps at the State, district, and sector EHTR centers would it be possible to continuously assess the situation and plan and effect changes to accommodate anticipated traffic. Each regulated route, each barricade and sign installation, each roadside control post, each detour, each blocked route, each repair or reconstruction job, and every other pertinent detail that would aid in assessing the current situation, and in planning ahead should be recorded in readily usable form at all the EHTR centers. As a general principle, the EHTR operation should be as little encumbered by paperwork as possible. But details of the current situation are a prime essential for without them confusion could be extreme and disastrous.

Routes which are found to be blocked by physical damage, such as destroyed pavement or demolished bridges, or which are impassable because of debris on the roadway, would be assessed as to their repairability and restoration to full or partial service. Information on the priority ranking of work to be undertaken in debris removal, road and structure repair or replacement construction of bypasses, and providing adequate detours should be obtained from the highway department.

Highway department decisions on a priority work schedule should be based on the developing post-attack traffic needs and general route availability; the relative and absolute conditions at each location; the advantage to be gained for traffic movement; the local availability of construction equipment, manpower, and materials; and the speed and safety (e.g., from radiation hazard) in which the work can be done should be taken into account.

Both the situation survey and the judgments involved in arriving at the reconstruction priority schedule should be handled as a collaborative effort of the EHTR staff and the State highway department. This is important since the former would have the responsibility for traffic estimation and regulation while the latter would have responsibility for doing the road repair work. Such collaboration can readily be planned and readily effected in actual operation. This is true since State highway department personnel would be a principal part of the EHTR organization, and in most States, the State highway department itself has been given the primary responsibility for planning and organizing for emergency highway traffic regulation—that is, the highway department is the "parent" of the EHTR organization.

It should be remembered that in time of emergency the State highway department should have full authority over all roads and streets, not just the State highway system alone. With this authority, it can use its own forces to undertake needed work on local roads. It can also take over jurisdiction and use local roads as detours for State routes and it can requisition the help of the the local highway departments.

An immediate need in connection with physically damaged or otherwise blocked highways would be to barricade the impassable sections. Probably the barricades should be placed at the nearest crossroad still open to traffic; and as soon as possible information signs prescribing available detours to various nearby destinations should be posted at the barricades. The barricades and signs would be placed by crews dispatched from the highway or police departments. As previously noted, barricades and signs of a type that would be needed should be prepared and stockpiled in advance at convenient, safe locations.

## ROAD-USE PERMITS

### Definition

The road-use permit is a legal form issued to authorize specific travel over a designated route during a specified time (see Figure 5). The essential elements of this permit are: date, route number, time of entry, destination, number of vehicles, etc.

### Issuance and Record Keeping

The key to successful traffic regulation on class "C" regulated routes is the planned issuance of road-use permits. A revised form of this permit is reproduced in Figure 5. It is expected that State organizations responsible for emergency highway traffic regulation will stock a master copy of this permit form available for quick reproduction in the event the need for it arises. Each State plan should also contain a copy of this form.

The display portion of the permit is intended to be taped on the vehicle windshield, so it may be quickly scanned at the roadside control posts. As illustrated in Figure 5, the route control number would be written in the center of the permit in large lettering, so it can be checked "on the fly." It is proposed also to make the date evident at a glance, simply by using a different color for the permit form, for each day of the week. The permit should be serially numbered, both on the stub and the display portion; the remaining details evident in the illustration are self-explanatory.

As a premise to further discussion of permit issuance, class "C" route regulation is instituted only

when it appears that anticipated traffic will overload the route section, so that all traffic cannot be accommodated--at least, at the particular time each vehicle operator himself would choose. It follows, then, that some traffic must be turned back or delayed; conversely, that traffic involving priority shipments must be given preference over any other. Then reduced to its simplest concept, road-use permit issuance may be concerned only with shippers who have already received cargo priority certification from the transportation agency charged with that responsibility. (If this latter statement seems oft-repeated, it is to ensure that EHTR participants constantly remember their own function is to accommodate official cargo and personnel priority shipments, not to authorize them. See page II-27 for further information concerning cargo priorities.)

After reducing the concept to this basic position, it can be assumed that a large proportion of permit issuance would be accomplished by contact between the highway users of the EHTR staff and the commercial vehicle operators, particularly those with fleets of more than just a few vehicles. It is such operators, in all likelihood, who would be handling the types of highway movements that warrant cargo and personnel priority certification: i.e., the handling of critically needed foodstuffs and other goods, and the operation of bus transportation.

Actual permit issuance would be far more easily handled if these commercial and military vehicle operators are furnished with pads of permit forms, and instructed as to their purpose and use, as a part of the EHTR organization's planning and preparatory work. If this advance distribution has not been accomplished, then it should be done quickly after the beginning of an emergency. It is evident, of course, that handing out blank permit forms must be done with some discretion and that they should be given only to trustworthy individuals in established and reliable concerns.

Assuming that the major vehicle operators have the blank forms in hand, the rest of the permit issuance operation is simplicity itself insofar as they are concerned. As soon as an operator has a specific shipment planned and has received a cargo priority certification for it, he would telephone the nearest EHTR center to find out if a road-use permit is needed, and to request its allocation. In all probability he would be talking by telephone with one of the highway user members of the EHTR staff with whom he has already had contacts, since the beginning of the emergency, and whom he knows through peacetime associations. The shipper would inform his EHTR contact of the trip origin and destination, number, and types of vehicles, nature of shipment, and all the rest of the information called for on the road-use permit form, including, of course, the desired travel route and time.

No. A 0,000,001

Trip origin \_\_\_\_\_  
 Trip destination \_\_\_\_\_  
 Number and type of vehicle \_\_\_\_\_  
 \_\_\_\_\_  
 Owner \_\_\_\_\_  
 Commodity \_\_\_\_\_  
 Shipment priority \_\_\_\_\_  
 Regulated route number \_\_\_\_\_  
 Authorized time of entry \_\_\_\_\_  
 (and/or such other items of information  
 as may be appropriate)

Issuing  
 EHTR Center \_\_\_\_\_  
 By \_\_\_\_\_

12	Highway Road-use Permit for Regulated route number  <span style="font-size: 48pt; font-family: cursive;">22</span>	12-1
11		1-2
10		2-3
9		3-4
8		4-5
7		5-6
6		6-7
5		7-8
4		8-9
3		9-10
2		10-11
1		11-12

Issuing EHTR Center \_\_\_\_\_  
 By \_\_\_\_\_

Valid only on \_\_\_\_\_ 19\_\_

STUB TO BE RETAINED  
 BY ISSUING EHTR CENTER

← (Perforated line)

ROAD-USE PERMIT  
 TO BE ISSUED

**FIGURE 5. STATEMENT OF PENALTY FOR MISUSE TO BE PRINTED ON BACK OF FORM!**  
 This permit is the property of the United States Government. Its counterfeiting, alteration or misuse is a violation of 18 U.S.C., Section 499 (1948). Violators shall be fined not more than \$2,000 or imprisoned not more than five years, or both.

The EHTR staff man would check his map and his day's allocation sheet, and if the route has only a locally controlled class "C" regulated section, he would be able to issue road-use permit authority then and there. If an intermediate or long-range trip is involved, with regulated sections controlled elsewhere, the EHTR Sector center would have to make arrangements through the District center and possibly the State center. Interstate arrangements may have to be made, as described previously. In these situations beyond local control, as soon as it is known that road space on regulated route sections is available for the trip, the EHTR Sector would advise the shipper accordingly.

For any allocations of road space within the State, the shipper would be told to fill in his own road-use permits, on the blank forms he already has at hand. Necessary information would be interchanged; for example, the shipper would inform the EHTR contact of the serial number on the permits being used; the contact man would inform him of the route section control number. The EHTR man would tally the proper number of vehicles in the appropriate box on his days' allocation work sheet. The shipper would tape the display portions of the permits on his vehicle windshields; and they are ready to go—at the proper time, of course.

It is recognized that this procedure depends on the cooperation and integrity of the shippers involved and it is possible that in isolated cases this confidence would be violated. But the alternative, to physically issue permits to major commercial vehicle operators only at EHTR centers or even at more numerous other locations, would inevitably result in inconvenience and delay to those handling the bulk of the priority shipments and, of course, delay to the shipments themselves.

While much of the cargo priority-certified shipments may be handled by the larger concerns among the commercial vehicle operators, it would also be probable that cargo priorities would be issued to commercial operators who own only one or a few vehicles, and to private automobile users—the businessman, doctor, or defense worker, or the family traveling to a new job and home.

To take care of these, permit-issuing stations can be established in fairly large numbers, well distributed for convenience throughout the area served. They can be located at police and fire stations, post offices substations, and other government buildings, including libraries and schools. They might even be located at shopping centers, the entrances to major stores and factories, etc. Each could be manned by an appropriately instructed volunteer, who need not have had any previous experience but who is willing to cooperate in the simple process involved; a

telephone would be required in order to communicate with the nearest EHTR sector center; and a supply of permit forms. One additional simple requirement is a sizable cardboard sign that can be placed in the window or tacked to the door, to show that there is a road-use permit station at the location.

The operation of a permit issuance from such stations would not be essentially different from that described above, except that it would be done through an intermediary. The individual seeking a permit, or information as to whether he would need one for a planned trip, would present his cargo priority certificate and/or request, in person, at the nearest permit station he can find. If possible, the location of these stations should be announced by radio broadcast or in newspapers if they are being published. The person manning the station would call the EHTR sector center on the telephone and relay the request, with appropriate information. Quite possibly the request can be granted at once, and the station "agent" would make out the permit. If a delay is necessary, the permit seeker can be asked to return at a specified time to the same station to complete the trip arrangements.

Under some circumstances, it would be anticipated, or found through experience after a few days' operation, that permit issuance is required on a route section because total traffic that would like to use it exceeds its capacity, yet the capacity is not nearly reached by the priority shipments. This situation may exist around the clock, or only during particular periods.

If the difference between cargo priority shipment volume and total capacity is sizeable enough and fairly steady, the EHTR organization may issue additional road-use permits for what it considers essential trips which, for various reasons, have not been granted an official cargo priority. Such trips might be of an urgent nature, that cannot wait for formal cargo priority action; or they may involve needs or purposes that are less important than those warranting a cargo or personnel priority but still, for economic or humane reasons, seem more essential than run-of-the-mill traffic. It is probable that the great majority of such trips would be local in character, and could almost wholly be processed by the EHTR sector center alone.

If permits of this category are to be issued, the daily road-use allocation tally sheets should be modified accordingly. For each regulated route section to be operated in this manner, it would be necessary to allocate separately for priority trips and for essential nonpriority trips. Actual physical issuance of permit forms would be handled primarily at the stations described in the preceding section, and in the same manner.

In addition to nonpriority but essential road-use permit issuance at EHTR centers and satellite stations, arrangements could be made for accommodation of such trips at a roadside control post.

Just how the total traffic-carrying capacity of the route is divided for the purpose of permit issuance would depend to a considerable extent on the route itself. As a generality, perhaps 10 percent is reasonable for State allocation, 20 percent for the district, and 70 percent for the sector; but the peak time trip-length distribution of the route, and any other past or current indications, may be used as criteria.

The mechanics for arranging the allocation probably are best handled in a descending order of EHTR level and should be explained in each State plan. The general routine of operation is likely to begin with a tentative decision at an EHTR sector center that a particular route section ought to be regulated; this decision would be recommended upward through the EHTR organization structure. Confirmation, approval, or alteration of tentative decision (for instance, the district may see the need to extend the controlled section into an adjacent sector) would be made first at the district center and then at the State center. In communicating the confirmed decision downward, the State first, and the district next, would specify the hourly allocation of road space that each has reserved from the total-carrying capacity for its own anticipated needs in permit issuance.

The reason for adopting the tri-level split-allocation method of handling individual trip allocations and road-use permit issuance is fairly obvious. Local vehicle operators naturally would contact the local EHTR sector center for road-use permits, particularly since they have already been in communication with that center, during the canvass of possible traffic demand, and would know from such contacts or from local news broadcasts that the particular route they want to use is now or shortly will be operated under regulation.

The other extreme in the picture can best be described by the following example. A trucker at a distant point, say in Iowa, may have a priority-certified cargo involving several vehicles which, in the course of their long trip, must cross Ohio. Of course, only from the Ohio EHTR organization can he learn whether any part of the proposed trip route in Ohio is closed or under class "C" regulation. But it can hardly be expected that the shipper as an individual in Iowa should make direct contract with the Ohio EHTR organization, even if he knew how to do so. His logical and probable action would be to get in touch with the EHTR sector (or perhaps district)

center in Iowa that is closest to him—one which undoubtedly he is already in contact with about local trips. From there, his request would be transmitted to the Iowa State EHTR center and thence to the Ohio State EHTR center. (In this example, the State EHTR centers of the intervening States of Illinois and Indiana may act as intermediaries, especially since their own highways would be involved in the Iowa-Ohio trip.)

Information and authority for issuance of the road-use permit would return to the Iowa shipper via the same communications channels, and the local EHTR center in Iowa would be able to give him fairly specific instructions. One of these would be to pick up the actual permit displayed on the vehicles. Presumably this would be the first roadside control post he reaches in Ohio. All this sounds involved, but radio or phone communications should make it possible to accomplish the entire transaction in a few hours.

On long-range trips of the type discussed above, it is probable that the vehicles involved would have to traverse several different class "C" regulated route sections within the States but each in a different EHTR district or sector. The State EHTR center would be able to handle all of the allocations and permits for the separate route sections within a State. If the initial contact with the shipper was at the local level, the state EHTR center would instruct the EHTR sector center to issue the required permits.

Concerning EHTR districts, intermediate-length trips can be handled by the EHTR district center in the same manner that long-range trips are handled by the State center.

At each level—State, district, and sector—the staff members handling the allocations would know the number of vehicles for which they could issue road-use permits, for each hour of controlled operation on each regulated route section. When it appears that the number of vehicles carrying priority-certified cargoes will exceed the quota, two alternatives are open.

One of these is to attempt to "borrow" space from the reserved block of another EHTR level; for example, the sector might query the district and State centers to ascertain whether either one could spare some of its originally allocated space. The other alternative is to attempt to get the shippers to rearrange their trip-time schedules; thus, a shipper could be informed that a particular time slot is rapidly filling up, and that some earlier or later hour is available, which might serve just (or almost) as well.

When a specific hour is already loaded by permit issuances, further requests for that particular time will have to be refused. In urgent cases, however, it may be possible to get some shippers to relinquish their permits in exchange for others at a different hour. This sort of trip-time shifting or swapping can most readily be managed at the local level, where the highway users on the EHTR staff are well acquainted with many of the commercial vehicle operators.

There is a quite different type of situation which could occur with some frequency. This situation would complicate the handling of allocations for road space unless it is anticipated and arranged for in advance. This involves the class "C" regulated route section that crosses EHTR unit lines; for example, a route that has one terminus in one EHTR sector and the other terminus in an adjacent EHTR sector. Depending on the individual situation, each of the two sectors involved could handle the allocation of road space for local traffic originating in that sector; that is, each sector would be handling traffic in only one direction on the route. An alternate would be for the district EHTR center to handle both local and intermediate trip allocations.

The possibilities of situations of this type are so manifold that it hardly seems practical to attempt to conceive of and plan for all of them in detail. Nevertheless, in actual operation, each time the decision to regulate a route section is about to be made, careful (but quick) consideration must be given to all possible unusual and complicating circumstances.

It is obvious that some basic records of permit issuance must be kept in each EHTR center, in the process of allocating regulated route section space, but they should be kept to a minimum. It is suggested that these records may be crude in nature just so long as they are accurate. Even accuracy is relative, since over-issuance of trip permits by 10 or 12 on a road section with an hourly capacity of 800 vehicles is not going to create any great amount of congestion, if any.

In its barest essence, the road space allocation and road-use permit issuance operation in any one EHTR center (especially at the local level) can largely be managed by a man with a telephone and a tally sheet.

In more specific terms, a sensible method of allocation control would be to post each day's permit issuance on a single, large sheet of paper. At any one time, of course, it would probably be necessary to have available and work on separate sheets for the current day and three or four days ahead.

These work sheets might be mounted on a wall panel in the EHTR center, adjacent to the large-

scale maps of the area. Here they would be available for all of the staff to see; and a number of EHTR staff members, engaged in contacting vehicle operators and issuing permits, could check the situation and post their records without unduly interfering with one another. If the operation is on a small scale, and one or two men can handle most of the contacts with vehicle operators, the posting sheets could be kept on a desk table where the men are working.

Each sheet, for a single days' operation, would be divided into columns and lines; each column representing an hour of the day and each pair of lines a regulated route section. Figure 6 illustrates a part of such a posting sheet. The day and date are prominently displayed, and the center indicated (whether section, district or State). For each regulated route section, the control number assigned to the route section (and there should be a prearranged plan for this numbering), the Interstate, U.S., State, or county route number (as signed on the road), and the termini should be shown. Because two-directional travel is involved, each route is given two lines, one for each direction. The combination of route numbers, termini, and travel direction is proposed as a means of avoiding any misunderstanding about which route section is involved, both in talking to vehicle operators and in posting permit issuances.

As shown by the enlarged inset in the illustration, each block represents 1 hour of space in one travel direction. There would initially be posted in a small box in the upper left corner (perhaps in red pencil), four figures representing the route section capacity. The topmost figure is the capacity portion allocated to the State for permit issuance; the next, the capacity allocated to the district; the next, the capacity allocated to the sector; and, at the bottom, the total. To avoid any confusion, the figure applicable to the allocating office should be circled. As illustrated in Figure 6, the posting sheet is that of an EHTR sector center, and the circled figure 280 indicates the number of vehicles for which the sector can issue permits in the 12-1 a.m. period for eastbound trips on controlled section No. 1, on Thursday, December 6.

The tally of permits issued or authorized is kept in the simple, old-fashioned pencil stroke system, with every fifth count recorded as a cross-stroke. Since large numbers of tallies are likely to be recorded, it is recommended that a cumulative total of the tally in each box be noted on the right, as each line is completed. This technique is illustrated in the example.

State of \_\_\_\_\_

EHTR DAILY ROAD-SPACE ALLOCATION SHEET

District: 3 Sector: ABLE COUNTY  
 (If this is district or State center sheet, so indicate)

Day: Thursday 12/6/92

Regulated Route Identification					Hour of Operation								
Control No.	US or State Route No.	From	To	Direction of Travel	12-1 AM	1-2 AM	2-3 AM	3-4 AM	4-5 AM	5-6 AM			
1	U.S. 6	Smithville No. Crty Line	JCT. SR 4	E									
				W									
2	SR 31	JCT. U.S. 13 near Billburg	JCT Co. RT 12	S									
				N									
3	U.S. 42 & CO. 3	Jct U.S. 42A No. of Johnsville	JCT SR 23	S									
				N.W.									
4	S.R. 2 S.R. 6 Co. 2			S.E.									
				N.W.									

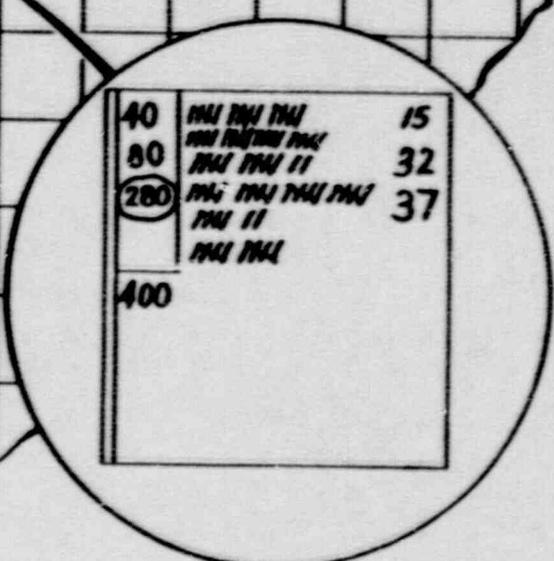


FIGURE 6. EHTR daily road use allocation sheet, for posting, road use permits issued or authorized

96 11

It hardly seems necessary to keep any record of permit issuance other than that described here; even trying to make carbon copies of the daily sheets would be difficult because of their size and constant handling. At the end of each day the day's sheet can be filed away, or for that matter simply discarded. The records are worth saving only for possible analysis of successes and failures of the operation, at some future time. During the operation there would be no time for much analysis; and the day's work, insofar as it helped or hindered essential traffic movement, cannot be undone.

It is important that each State consider the foregoing ideas for record keeping and incorporate in the State EHTR plan these or similar ideas whichever are best suited to the individual State.

## OPERATION OF REGULATED ROUTES

### Cargo Priorities

Each State EHTR plan should contain specific details as to how cargo and personnel priorities would be obtained by shippers subsequent to a nuclear attack. Clearly (see FHWA Order 4-7-2-4) it is not the function of the EHTR organization to issue these priorities. It is the function of this organization to ration road space as necessary by the issuance of road-use permits so that available traffic-carrying capacity may be efficiently utilized. The EHTR staff will make decisions of precedence of movement only when the number of equal-priority vehicles seeking road space at the same time exceeds the particular route capacity. Most State emergency management plans contain a provision for the post-attack creation of Federal-State Emergency Motor Transport Boards. In most cases, each board is composed of a representative of the State regulatory agency, and the motor transport industry. The State representative is responsible for State policies and procedures, and the State motor carrier association manager or someone designated by him acts as the industry consultant or advisor to the board on motor transportation. In order to assure coordination, each board has a chairman. The chairman's function is one of coordination and central guidance to the board in order to assure unified actions. In an emergency the board would be activated and operate from the emergency headquarters as established by the State. Among the several responsibilities of these joint Federal-State boards would be the issuance of permits authorizing the shipment of resource commodities. The ICC will have no control over and would not participate as a member of the EHTR organization when the EHTR organization is activated. This includes industry operational guidance, standby programs for reduction of

vulnerability, maintenance, restoration and utilization of the capacity of domestic surface transportation in an emergency.

In order to better explain the procedures for motor freight shipment during a national defense emergency the steps required for a delivery after controls have been established are listed below.

(1) A shipper requests a priority for a load of critical material from the above-referenced Federal-State Emergency Motor Transport Board.

(2) The shipper either uses his usual carrier or requests from the Federal-State Emergency Motor Transport Board a carrier assignment; in which case a trucker having the required equipment would be assigned to make the delivery.

(3) If the State EHTR organization has concluded that highway regulation is unnecessary on the route which the trucker wishes to use, the trucker would deliver his load in a normal manner.

(4) If, however, the EHTR organization has instituted traffic regulation then the trucker must obtain a road-use permit from the nearest EHTR center which would be evidence that he has been cleared to use a particular regulated route.

Admittedly, during periods of class "C" route regulation, there will be representations of essentiality or urgency of trips by those who cannot obtain or do not have sufficient time to seek a formal cargo or personnel priority certification. The EHTR organization, whenever possible, should give preferential consideration to bonafide cases of this type. They can best be taken care of at road-use permit issuance "stations" or at roadside control posts, as will be discussed later.

The following information from Paragraph VIII, (c) (1) of the Louisiana EHTR Plan (April 29, 1983) exemplifies how a State plan should identify the organization which issues numerical priorities covering cargoes and personnel:

"(c) Priorities and allocation of road use permits

(1) Federal and State transportation agencies of a joint Federal-State Motor Transport Board will establish numerical priorities covering persons and goods to be transported and services to be rendered, thus determining which should be given the preference in road space. Recognition of such priority by regulation centers in the issuance of road use permits will be based solely upon the priority classification assigned to the persons or goods for which road use permits are requested. The type of vehicle or the ownership thereof shall not be considered, nor does the possession of a

State or Interstate Commerce Commission 'permit' to operate on all or certain routes during normal conditions, establish any form of priority or preference."

### EMERGENCY HIGHWAY TRAFFIC REGULATION SIGNS

Under Section 102 of Executive Order 11490, in addition to preparing plans for a national emergency, as assigned to each department, the heads of departments and agencies shall "(c) . . . (3) be prepared to implement, in the event of an emergency, all appropriate plans developed under this order."

With respect to the responsibilities assigned to the Department of Transportation, Section 1303 of the Executive Order directs the Secretary of Transportation to "prepare emergency operational plans and programs for, and develop a capability to carry out, the transportation operating responsibilities assigned to the Department, including but not limited to:

(3) Emergency resource management of all Federal, State, city, local, and other highways, roads, streets, bridges, tunnels and appurtenant structures, and publicly-owned highway maintenance equipment, including:

(b) The regulation of highway traffic in an emergency through a national program in cooperation with all Federal, State, and local governmental units concerned to assure efficient and safe utilization of available road space."

It appears from the foregoing requirements of the Executive Order that, in order to "develop a capability to carry out" the obligations of the Department of Transportation with respect to emergency signs, it is necessary to prepare the signs now for immediate installation when an emergency is declared and to stockpile the same for such use.

Under certain conditions, Federal-aid funds may be used to participate in the cost of purchasing and stockpiling emergency highway traffic regulation signing. It has been determined that no legal objection exists to the funding of such signs from funds otherwise available under 23, USC, 109(d), inasmuch as such signs, during a national emergency, "Will promote the safe and efficient utilization of the highways." However, since the funding of emergency signs appears to be also an obligation of the Federal Emergency Management Agency, in each instance in which Federal-aid funds are used, a State should first request assistance in the purchase of such signs from its State emergency services director. A denial of such funds by that office can be used as the basis for the determination of the eligibility for Federal-aid participation.

It is expected signs will be initially purchased under one Federal-aid project and adequately warehoused so as to prevent undue deterioration.

Therefore, at the State's election, the project may be financed with either Federal-aid primary, secondary, or urban funds at the prevailing matching ratio. Interstate or special Federal-aid funds may not be used. The Federal Highway Administration should be contacted for specific instructions concerning the appropriate project and agreement number. It is expected that adoption of this simplified procedure will reduce administrative costs of these projects.

The following signs are identified below as having particular application to the emergency highway traffic regulation program.

#### Evacuation Route Marker (CD-1)

The Evacuation Route Marker shall be circular, having a minimum outside diameter of 18 inches, carrying a directional arrow and the legend EVACUATION ROUTE. The standard Civil Defense Symbol, CD inscribed in a triangle within a ring, shall appear near the bottom of the sign, with a diameter of 3 1/4 inches. The legend, arrow, symbol, and border shall be in white on a blue background. At least the arrow and border shall be reflectorized. The arrow designs shall include a straight vertical arrow pointing upward, a straight horizontal arrow pointing to left or right, and a bent arrow pointing left or right for advance warning of a turn. The arrow may be a separate unit attached to the face of the sign. The marker format may also be used on a nonreflectorized, white, square plate.

The Evacuation Route Marker, with the appropriate arrow, shall be erected 150 to 300 feet in advance of, and at, any turn in an approved evacuation route, and elsewhere for straight-ahead confirmation where needed. In urban areas it shall be mounted at the right of the roadway, not less than 7 feet above the top of the curb, and at least 1 foot back from the face of the curb. In rural areas it shall be not less than 5 feet above the crown of the roadway and 6 to 10 feet to the right of the roadway edge.

Evacuation Route Markers shall not be placed where they will conflict with normal signs. Where conflict in placement would occur between the Evacuation Route Marker and a standard regulatory sign, the latter shall take precedence. In case of conflict with a standard informational sign the civil defense sign may take precedence.

Placement of Evacuation Route Markers should be made under the supervision of the officials having jurisdiction over the placement of normal traffic signs, but coordination with Civil Defense authorities and agreement between contiguous political entities will be necessary to assure continuity of routes.



CD-1  
18" diameter

Background blue  
Border white (refl.)  
Letters white

Background white (refl.)  
Border black  
Letters black



CD-3  
30' x 30'  
30' x 24'

#### Area Closed Sign (CD-2)

The AREA CLOSED sign shall be used to close a roadway entering an area from which all traffic is excluded because of dangerous radiological or biological contamination. It shall be erected on the shoulder as near as practicable to the right-hand edge of the roadway, or preferably on a portable mounting or barricade partly or wholly on the roadway. For best visibility, particularly at night, its height should not normally exceed 4 feet from the pavement to the bottom of the sign. Unless adequate advance warning signs are used, it should not be so placed as to create a complete and unavoidable blockade. Where feasible, the sign should be located at an intersection that provides a detour route.



CD-2  
30' x 24'

Background white (refl.)  
Border black  
Letters white

#### Emergency Speed Sign (CD-4)

The MAINTAIN TOP SAFE SPEED sign may be used on highways where radiological contamination is such as to limit the permissible exposure time for occupants of vehicles passing through the area. Since any speed zoning would be impractical under such emergency conditions, no minimum speed limit can be prescribed by the sign in numerical terms. Where traffic is supervised by a traffic regulation post, official instructions will usually be given verbally, and the sign will serve as an occasional reminder of the urgent need for a reasonable speed.

The sign should be erected at random intervals as needed, in the same manner as other standard speed signs. In rural areas, it shall be mounted on the right-hand side of the road with its lower edge not less than 5 feet above the crown of the roadway, 6-to-10 feet from the roadway edge. In urban areas, the height shall be not less than 7 feet, and the nearest edge of the sign shall be not less than 1 foot back from the face of the curb. Where an existing Speed Limit sign is in a suitable location, the Top Safe Speed sign may conveniently be mounted directly over the face of the older sign, which it supersedes.

#### Traffic Regulation Post Sign (CD-3)

The STOP TRAFFIC REGULATION POST sign shall be used to designate a point where an official post has been set up to impose such controls as are necessary to limit congestion, expedite emergency traffic, exclude unauthorized vehicles, or protect the public. It shall be erected in the same manner as the Area Closed sign at the point where traffic must stop to be checked.

The standard R-1 STOP sign shall be used for this mandatory stop restriction. The supplement panel TRAFFIC REGULATION POST should be mounted directly below the STOP sign and shall consist of a black legend on a reflectorized white background.



Background Red (refl.)  
Border white (refl.)  
Letters white (refl.)

Background white (refl.)  
Border black  
Letters black



CD-4  
24' x 30'

#### Road-Use Permit Sign (CD-5)

The ROAD USE PERMIT REQUIRED FOR THRU TRAFFIC sign is to be used at an intersection, at the entrance to a route on which a traffic regulation post is located. Its intent is to notify drivers of the presence of the post so that those who do not have road-use permits issued by designated authorities can detour on another route, or turn back, without making a needless trip and without adding to

the screening load at the post. Local traffic, without permits, may proceed as far as the regulation post. The sign shall be erected in a manner similar to that of the emergency speed sign.

Background white (refl.)  
Border black  
Letters black



CD-6  
24" x 30"

### Part III ROLE OF THE MILITARY

Beginning in the early days of the Federal-aid Highway Program, and continuing through the years, there has been a close link between American highways and national defense which has been of inestimable importance in strengthening the country's security.

As far back as 1922, the then Bureau of Public Roads, now the Federal Highway Administration, sought the advice of the War Department as to which roads should be considered of strategic importance in the event of war. As a result of this contact, the War Department supplied a map of the United States on which were marked highways of strategic value. This map signed by General John J. Pershing, became known as the Pershing Map. The indicated roads have since been substantially improved as part of the Federal-aid System.

Subsequently, Congress by the Federal-Aid Highway Act of 1944, created the National System of Interstate and Defense Highways, which initially authorized the designation of a network of 40,000 miles of limited access highways (subsequently raised to 42,500). This Act provided for a system "so located as to connect by routes as direct as practicable the principal metropolitan areas, cities, and industrial centers, to serve the national defense, and to connect at suitable border points with routes of continental importance in the Dominion of Canada and the Republic of Mexico."

The degree to which the national security is dependent on highway transportation cannot be overstated. Industrial plants producing military and defense supplies as well as the military installations themselves, would be crippled without adequate highway facilities. In effect, highways have become an adjunct of industry's production line, taking a vital part in the conversion of raw materials to finished products. It is estimated that almost 4,000,000 persons are employed in defense-oriented industries, with most of them relying on motor vehicles to get to and from their jobs. The Department of Defense operates a substantial number of vehicles which require adequate highway capacity.

With this explanation, let us consider the role of the military in the field of emergency preparedness as background for emergency highway traffic regulation (EHTR) planning. The role of the military can, of

course, be divided into distinct categories: military actions in any theatre of operations environment, and military support of civil defense—both of which will depend heavily upon the most efficient highway movement facilities and traffic flow patterns available at the time of any disaster. The latter especially requires effective emergency highway traffic regulation planning by civil authorities and military officials.

The Department of Defense (DOD) has designated the Department of the Army as the single manager of planning and operation of the military aspects of emergency highway traffic regulation. (At the national level, this program is administered by the Headquarters, Military Traffic Management Command (MTMC).) The Department of the Army has, in turn passed this responsibility through Forces Command (FORSCOM) to the Army area commanders listed in this part. Each Army area commander has coordinated with the Navy and Air Force commanders in his area. It is expected that for some time in the post attack period the military will be the largest single highway user.

The Army concept of operation is to send a team to each State emergency highway traffic regulation center when activated. These teams will, in most cases be jointly manned by all services, with the senior officer provided by the service with the highest density in the area. As an example, in Connecticut, with its many naval installations, the Navy should probably provide the chief of the team at the Connecticut State Highway Traffic Regulation Center, but each of the other services may also provide personnel, the number dependent on availability and the workload.

Following initial notification, the officer in charge will proceed to the traffic regulation centers to which he has been assigned and determine the military personnel and logistical support requirements. He will then notify the military installation commanders of these requirements. It is to be expected that the number of military personnel at any traffic regulation center will vary from time to time as conditions change. All services will be instructed by the MTMC—for those instances in which such procedures must be implemented—to curtail or eliminate, as

much as possible, shipments into, out of, or through any affected areas.

There are several functional areas in which the military regulation teams will perform. The principal function, of course, will be to receive requests from military users and obtain the necessary clearances in coordination with the other users staffing the emergency highway traffic regulation centers. Another principal function of the teams will be to request designation of class B routes whenever it is felt these routes will be required. It is the intent of the military to attempt to keep convoys to a minimum, although it is expected, particularly during the early phase of the operation, there will be a number of emergency moves. Whenever possible, convoys will be consolidated and class B routes used to expedite moves through areas controlled by emergency highway traffic regulation.

Another function of the military teams will be to obtain information on road status and disseminate this to all military installations and activities. Conversely, teams will obtain projections from military users and keep State traffic centers advised of projected moves. Military teams will assist civilian agencies in nondefense emergency highway traffic regulation movements, if required in accordance with public law and if the military has the capability to provide this assistance.

It should be noted that these teams will not be granting clearances to the military. The military liaison officers will arrange for their vehicles to use road-use permits just as will any user. A distinctive difference of course will be the designation of class B routes for the use of the military. It is DOD policy to use commercial transportation whenever possible. In this case the industry would obtain their own permits with assistance from the military liaison officers if necessary. It should be stressed that the issuance of permits by the EHTR centers, referred to above for road space allocation is a separate and distinct function from designating priorities of cargo movements. As stated in Part II the EHTR organization is not responsible for the provision or allocation of motor vehicles to shippers nor for designating priorities of cargo movements. These are the assigned functions of other emergency transportation agencies. The EHTR organization will accept the priority certificates of such agencies without question and will have the responsibility in issuing road-use permits to accommodate all priority shipments.

Each Army area command has prepared a military EHTR plan which recognizes that the Federal Highway Administration has national responsibility for highway traffic regulation during national defense emergencies. By DOD directives and Joint

Military Service regulation, the Secretary of the Army, through the Commander, MTMC, is the officially designated representative of DOD in all public highway matters, and acts to assure that military plans for emergency highway traffic regulation are compatible with civil EHTR plans. These military plans recognize that each State is responsible for emergency highway traffic regulation in accordance with guidelines issued by the Federal Highway Administration. Accordingly, each State should coordinate and distribute its EHTR plan, and changes thereto, to the Army area commander within whose command the State lies. (Military addresses for distribution of EHTR plans are listed later in this part.)

No discussion of the military role in emergency highway traffic regulation would be complete without reference to the military role in support of the National Civil Defense Program, which follows.

The Department of Defense, in recognition of the essential interdependence of the civil and military defense efforts of our Nation in achieving the total posture of national security, has directed (DOD Directive 3025.10) that military support to civil authorities in civil defense operations is an emergency task within the mission of all Federal active duty and Reserve units of the military services and Defense agencies. Their mission is to be prepared to employ available resources which are not engaged in essential combat, combat support or self-survival operations to assist civil authorities to restore order and civil control, return essential facilities to operation, prevent unnecessary loss of life, alleviate suffering and take other actions as directed to ensure national survival and a capability on the part of the Nation to continue the conflict. In such employment, established military organizational channels and prearranged plans will be followed when possible.

In the discharge of the mission action will be taken to: (1) provide for coordination and control—both preattack and post-attack—of available military (active and reserve) capabilities and available resources; (2) establishment under CDR FORSCOM and the CONUS Army commanders of State military headquarters to plan for and conduct operations in support of civil defense utilizing the State adjutants general and the State headquarters and headquarters detachments; and (3) establishment of a State level system wherein the State adjutant general will be responsible for the preattack planning and emergency operations for such forces of all services as may be available within the State for civil defense support purposes.

The channel of command for all military support of civil defense planning and operations is from Headquarters Department of the Army, through

CDR FORSCOM to the CONUS Army Commanders. This includes all preattack civil defense planning, the assignment of missions, and post-attack civil defense operations. It also applies to class II installation commanders and the available resources of the defense agencies placed under the planning and operational command of CONUS Army commands for national defense emergencies.

When authorized by the President, under an appropriate Executive order to be issued during a national defense emergency, or during the prelude to such a situation, the State headquarters and headquarters detachments of the National Guard in each of the States, less elements required for conduct of selective service and State defense activities, will be ordered to active duty. These detachments will execute the CONUS Army commander's plan for control of military support within each respective State.

Upon order to active duty, the State level headquarters will continue close liaison with the State governors, the State civil defense director and other appropriate state and local authorities. The State level commanders will assume command of such units and resources for military assistance to civil authorities as may be designated by CONUS Army commanders.

Requests for military support normally will be accepted no lower than the State civil defense director.

Plans will be developed and maintained as necessary to assist civil authorities in times of emergency in restoring Federal, State and local civil operations. Such interim emergency assistance will be in coordination with and supplementary to, the capabilities of State and local governments and other nonmilitary organizations and will be concerned with the specific categories of assistance as explained later in this part.

In planning for emergency operations the comment is often heard that planning by civilian authorities is a useless exercise because, in a serious emergency martial law would be declared and the military authorities would assume the functions of civil government. This of course is not planned nor would

it be possible. Following a nuclear attack the Armed Forces simply would not have the manpower necessary to perform these civil functions even if it were not needed for military operations. The military will expect the civilian EHTR program to control and regulate the usable highway road net. The military, however, will provide staffing at certain and, possibly, all of the EHTR centers just as other users will provide staffing to ensure that appropriate road space allocations and assignments are made for those high priority military and other essential movements. The only occasion for the military to assume full control of highway traffic regulation would be in a theater of operations.

The following policy statement is the current guidance for emergency planning purposes:

"Nationwide martial law is not an acceptable planning assumption; martial law as a local measure is to be avoided wherever possible." Consequently, all civil emergency planning is based on the premise that the military services would assist but not replace civil government in carrying out its essential functions.

Additional information concerning the role of the military in emergency highway traffic regulation may be found in the following publications, copies of which may be obtained through the nearest military installation to the requester.

- a. DOD Directive Number 3025.10, "Military Support of Civil Defense."
- b. DOD Directive Number 5160.60 "Highways for National Defense."
- c. Army Regulation 55-80. "Highways for National Defense."
- d. Army Regulation 55-162. "Permits for Oversize, Overweight or Other Special Military Movements on Public Highways. . ."
- e. Army Regulation 55-355, "Military Traffic Management Regulation."
- f. Army Regulation 500-70, "Emergency Employment of Army Resources."

Copies of these publications will be of interest to anyone concerned with emergency highway traffic regulation training and they will be useful tools for State EHTR centers.

MILITARY ADDRESSES FOR DISTRIBUTION  
OF EHTR PLANS

Army Area

Commanding General  
First United States Army  
Attn: AFKA-LG  
Fort George G. Meade, Maryland 20755  
Puerto Rico should send a copy of its plan to:

Region 1

Connecticut  
Maine  
Massachusetts  
New Jersey

New Hampshire  
New York  
Rhode Island  
Vermont

Commander  
U.S. Army Garrison  
Attn: AFZL-DI  
Fort Buchanan, Puerto Rico 00934

Region 3

Delaware  
District of Columbia  
Maryland

Pennsylvania  
Virginia  
West Virginia

Commanding General  
First United States Army  
Attn: AFKA-LG  
Fort George G. Meade, Maryland 20755

Maryland, Virginia and the District of Columbia should also transmit a copy to:

Commanding General  
Military District of Washington  
Fort Leslie J. McNair  
Washington, D.C. 20315

Region 4

Alabama  
Florida  
Georgia  
Kentucky

Mississippi  
North Carolina  
South Carolina  
Tennessee

Commanding General  
Second United States Army  
Attn: AFKD-LG  
Fort Gillem, Georgia 30050

Region 5

Illinois  
Indiana  
Michigan

Minnesota  
Wisconsin

Commanding General  
Fourth United States Army  
Attn: AFKE-LG  
Fort Sheridan, Illinois 60037

Ohio should send a copy of its plan to:

Commanding General  
First United States Army  
Attn: AFKA-LG  
Fort George G. Meade, Maryland 20755

Region 6

Arkansas  
Louisiana  
New Mexico

Oklahoma  
Texas

Commanding General  
Fifth United States Army  
Attn: AFKB-LG  
Fort Sam Houston, Texas 78234

Region 7

Kansas  
Nebraska

Missouri

Commanding General  
Fifth United States Army  
Attn: AFKB-LG  
Fort Sam Houston, Texas 78234

Iowa should send a copy of its plan to:

Commanding General  
Fourth United States Army  
Attn: AFKE-LG  
Fort Sheridan, Illinois 60037

Region 8

Colorado  
Montana  
North Dakota

South Dakota  
Utah  
Wyoming

Commanding General  
Sixth United States Army  
Attn: AFKC-LG  
Presidio of San Francisco, California 94129

Region 9 and Region 10

Arizona  
California  
Idaho

Nevada  
Oregon  
Washington

Commanding General  
Sixth United States Army  
Attn: AFKC-LG  
Presidio of San Francisco, California 94129

Hawaii should send a copy of its plan to:

Commander  
U.S. Army Western Command  
Attn: AFZB-DI  
Fort Shafter, Hawaii 96858

Alaska should send a copy of its plan to:

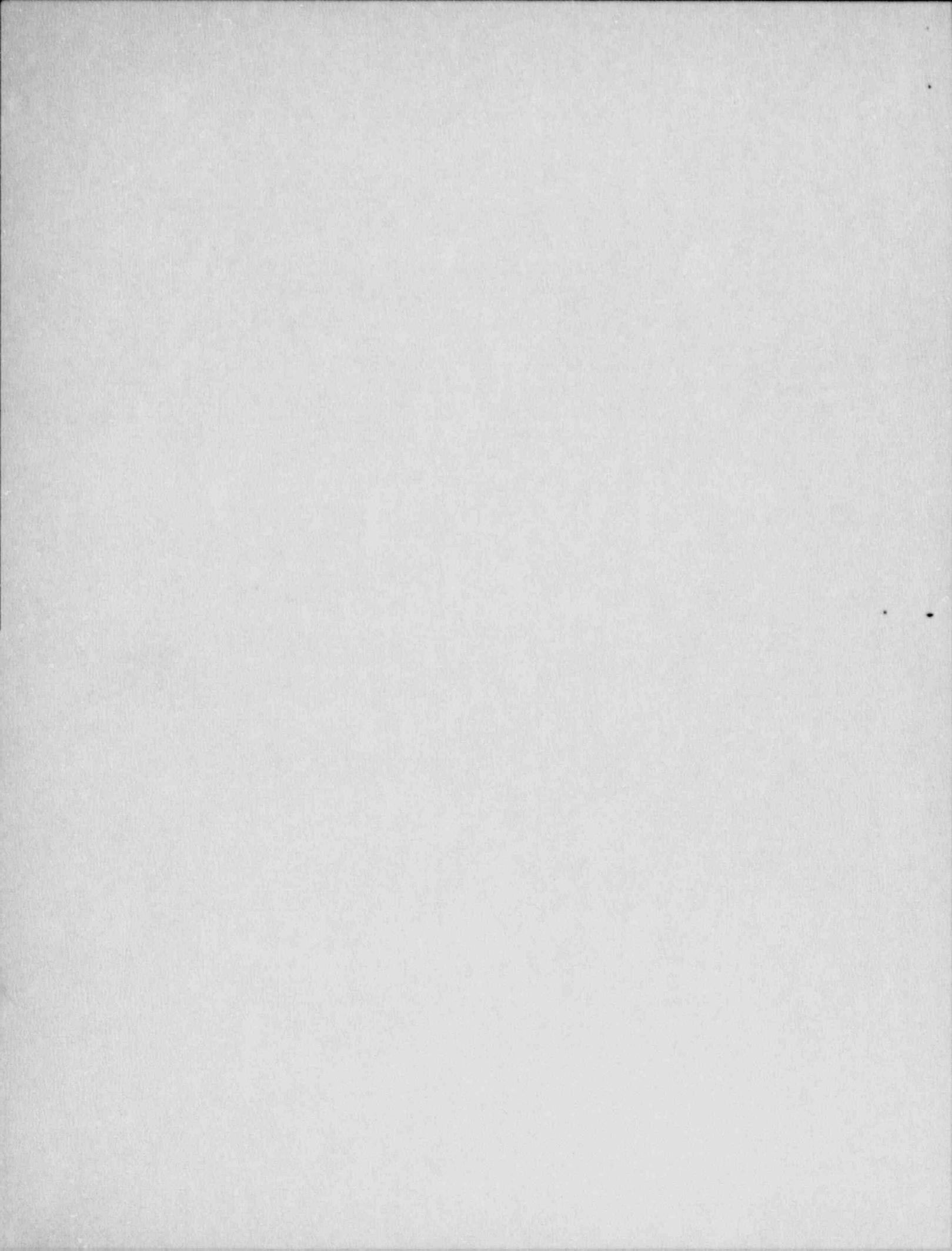
Commander  
172nd Infantry Brigade (Alaska)  
Attn: AFZT-DI  
Fort Richardson, Alaska 99505

## **Part IV NUCLEAR RADIATION HAZARDS TO HIGHWAY TRANSPORTATION**

Guidance from FEMA on the hazards of operating in a radiological environment subsequent to an attack on this Nation should be closely heeded. This guidance has been disseminated to the various State emergency services organizations throughout the country. State highway agencies work closely with

these organizations and often play major roles in their statewide radiological monitoring systems.

The EHTR organization should maintain constant communications with elements of this system in the establishment of class "A" routes as well as ascertaining the possible radiological impact on personnel operating on all classes of regulated routes.



# Part V EVACUATION PLANNING FOR NATURAL DISASTERS, TECHNOLOGICAL HAZARDS AND NUCLEAR ATTACK

## CHAPTER I—AN OVERVIEW TO EVACUATION

Many threats may require evacuating people from areas considered to be dangerous—if the threat developed into an actuality.

An example is a severe international crisis which—if negotiations to settle the crisis were not successful—could escalate to a nuclear attack on the United States. Nuclear attack evacuation planning was started in each of the States between 1977 and 1979. The plans will provide an option to protect the 145 million people living in potential nuclear attack "risk areas." This option is to give the United States a capability to evacuate people from risk areas over a period of several days, during a severe crisis, to surrounding lower risk "host" areas.

Population Protection plans are being developed as one aspect of implementing civil defense policies specified in Presidential National Security Decision Directive of March 1982. This directive provides that "...the United States civil defense program should enhance deterrence and stability...and also reduce the possibility that the Soviets could coerce the United States in times of increased tension." The directive also specifies that the program include planning for population evacuation during times of international crises as well as natural disasters, technological hazards and other peacetime emergencies.

Population Protection plans involve moving risk area populations, providing food, temporary lodging, and other support, and developing fallout protection for the evacuees in the host areas. If time and circumstances during a crisis permit evacuating most of the population, and developing protection,

there will be many millions of survivors should the crisis escalate to a large-scale nuclear exchange.

Many other kinds of peacetime threats may also require evacuation. Natural disasters such as hurricanes, floods, earthquakes and volcanoes are examples of such disasters. Additionally, accidents involving release of hazardous materials are possible, which may necessitate movement of persons away from the accident.

In case of a developing threat by one of these, it could be necessary to rapidly develop plans for the possibility of evacuation if relocation plans have not already been prepared. For example, it is possible that a severe international crisis could arise before detailed evacuation plans have been developed for all United States high risk areas, and it is conceivable that evacuation could be directed even though plans were not available for some areas.

Peacetime experience shows that evacuation from smaller-scale threats, with relatively smaller numbers of people involved can be and often is handled on an improvised basis, without plans developed in advance. But experience also shows that planning is essential where scores or hundreds of thousands (or millions) of people need to be evacuated.

The basic planning approach for evacuation is the same regardless of the type of threat. One of the main considerations is transportation and movement planning. State highway organizations should establish and maintain a close liaison with the State Emergency Services/Civil Defense Agency in order to insure that State EHTR Plans are compatible with other State emergency planning efforts.

## Chapter II · NATURAL DISASTERS TECHNOLOGICAL HAZARDS AND NUCLEAR ATTACK

A number of natural disasters can be categorized as having sufficient warning associated with them that evacuation is often an appropriate emergency action. Although this action will not save property, it will save a life.

When determined to be the appropriate action due to an impending hurricane, flood or volcano eruption, key State officials, should be prepared to implement State Emergency Highway Traffic Regulation Plans.

To date, approximately 37 percent of the jurisdictions in the United States requiring nuclear attack evacuation plans have developed them. These plans include annexes covering communications, warning, command and control, movement, lodging and feeding, shelter, law enforcement, firefighting, search and rescue, etc. With the development of the Integrated Emergency Management System (IEMS), generic emergency planning will integrate the full spectrum of hazards and threats of disaster into a single emergency plan (i.e., Population Protection Plan) for the jurisdiction.

Likewise, several technological hazards can occur or threaten in which local emergency service officials will deem it necessary to initiate evacuation of a community, county or several counties in a State. Examples of this are transportation accidents involving hazardous materials, i.e., toxic chemicals and radioactive materials and the accidental release of radioactive materials from a fixed nuclear facility.

There are approximately 170 commercial nuclear power reactors licensed to operate, under construction, or planned throughout the United States. Accidental release of radioactive material to the environment is possible. Should this occur, the operator of the nuclear facility would promptly determine the magnitude of the accident, and notify emergency officials of nearby jurisdictions and the State. If significant off-site contamination is anticipated, the facility operator will recommend to State and local government officials appropriate protective actions for the public. As in the case of preparedness for nuclear attack, time, distance and shielding are important factors in avoiding radiological exposure from the consequences of a nuclear facility accident.

Planning for effective community response to nuclear power reactor emergencies is a joint effort by nuclear facility management, and local, State,

and Federal agencies. This is required if the responsible authorities are to be able to assess the severity of an emergency and, if necessary, execute emergency protective actions such as evacuating populations near nuclear facilities or sheltering them in-place.

It is not possible to predict with precision the amount of warning time that would be available in a given community or the intensity or duration of the hazard before the onset of a radiological accident. This would depend upon the type and severity of the accident, weather conditions, in particular the winds prevailing at the time, and other factors.

For many years, EHTR guidance has concerned itself with post-attack emergency management of the Nation's highway system, traffic control, signing and road use permits. As these actions are provided for in State EHTR Plans, it is essential that current State EHTR Plans be revised to include the pre-attack consideration of military mobilization and population evacuation from areas surrounding military installations and large-population centers.

Military mobilization, once ordered by the President, will require traffic control in the vicinity of military bases, ports of embarkation and at industrial centers which supply military equipment. It can be anticipated that the military will periodically require the use of highways for convoy purposes but not on a continuous basis.

EHTR State planners should exercise close coordination with designated military transportation officials in order to provide for military mobilization requirements which could involve utilization of highway road space during emergency conditions.

Included in the Population Protection Plan is the nuclear attack hazard which involves the evacuation of the American population in risk areas surrounding military installations and large population centers following a Presidential declaration of a National Defense Emergency and by direction of a State Governor.

State population protection measures will be implemented by the Governor of each State at the request of the President. This evacuation could involve as many as 145 million people from approximately 400 risk areas. Approximately 10-20 percent of these people can be expected to leave in advance of a nationally directed evacuation. Once an

evacuation has been directed, movement should be complete from most risk areas within 72 hours. Larger urbanized areas will require longer time periods. In these larger urbanized areas the minimum duration of the evacuation period is expected to be seven days and the maximum several weeks or more.

The primary transportation resource for such evacuation will be the automobile. Population Protection Planning by State Planners will require extensive coordination and cooperation with State

transportation highway officials in order to achieve effective transportation planning. This planning will include analysis of movement routes, public transportation, sources of automobiles, trucks and buses, designating rest and staging areas, movement control, breakdowns, parking, fuel and variety of other considerations.

State highway emergency planners are encouraged to establish a working liaison with State Emergency Services/Civil Defense Agency Population Protection Planners.

**APPENDIX A**  
**EXECUTIVE ORDER 11490**  
**ASSIGNING EMERGENCY PREPAREDNESS FUNCTIONS TO**  
**FEDERAL DEPARTMENTS AND AGENCIES**

WHEREAS our national security is dependent upon our ability to assure continuity of government, at every level, in any national emergency type situation that might conceivably confront the nation; and

WHEREAS effective national preparedness planning to meet such an emergency, including a massive nuclear attack, is essential to our national survival; and

WHEREAS effective national preparedness planning requires the identification of functions that would have to be performed during such an emergency, the assignment of responsibility for developing plans for performing these functions, and the assignment of responsibility for developing the capability to implement those plans; and

WHEREAS the Congress has directed the development of such national emergency preparedness plans and has provided funds for the accomplishment thereof; and

WHEREAS this national emergency preparedness planning activity has been an established program of the United States Government for more than 20 years:

Now, therefore, by virtue of the authority vested in me as President of the United States, and pursuant to Reorganization Plan No. 1 of 1958 (72 Stat. 1799), the National Security Act of 1947, as amended, the Defense Production Act of 1950, as amended, and the Federal Civil Defense Act, as amended, it is hereby ordered as follows:

**PART 1—PURPOSE AND SCOPE**

**SECTION 101. PURPOSE.** This order consolidates the assignment of emergency preparedness functions to various departments and agencies heretofore contained in the 21 Executive orders and 2 Defense Mobilization orders listed in Section 3015 of this order. Assignments have been adjusted to conform to changes in organization which have occurred subsequent to the issuance of those Executive orders and Defense Mobilization orders.

**SECTION 102. SCOPE.** (a) This order is concerned with the emergency national planning and preparedness functions of the several departments and agencies of the Federal Government which complement the military readiness planning responsibilities of the Department of Defense; together, these measures provide the basic foundation for our overall national preparedness posture, and are fundamental to our ability to survive. The activities

undertaken by the departments and agencies pursuant to this Order, except as provided in Section 3003, shall be in accordance with guidance provided by, and subject to, evaluation by the Director of the Federal Emergency Management Agency.

(b) The departments and agencies of the Federal Government are hereby severally charged with the duty of assuring the continuity of the Federal Government in any national emergency type situation that might confront the nation. To this end, each department and agency with essential functions, whether expressly identified in this order or not, shall develop such plans and take such actions, including but not limited to those specified in this order, as may be necessary to assure that it will be able to perform its essential functions, and continue as a viable part of the Federal Government, during any emergency that might conceivably occur. These include plans for maintaining the continuity of essential functions of the department or agency at the seat of government and elsewhere, through programs concerned with: (1) Succession of office; (2) predelegation of emergency authority; (3) safekeeping of essential records; (4) emergency relocation sites supported by communications and required services; (5) emergency action steps; (6) alternate headquarters or command facilities; and (7) protection of Government resources, facilities, and personnel. The continuity of Government activities undertaken by the departments and agencies shall be in accordance with guidance provided by, and subject to evaluation, by the Director of the Federal Emergency Management Agency.

(c) In addition to the activities indicated above, the heads of departments and agencies described in Parts 2 through 29 of this order shall: (1) prepare national emergency plans, develop preparedness programs, and attain an appropriate state of readiness with respect to the functions assigned to them in this order for all conditions of national emergency; (2) give appropriate consideration to emergency preparedness factors in the conduct of the regular functions of their agencies, particularly those functions considered essential in time of emergency, and (3) be prepared to implement, in the event of an emergency, all appropriate plans developed under this order.

**SECTION 103. GENERAL COORDINATION.** The Director of the Federal Emergency Management Agency (FEMA) shall determine national

preparedness goals and policies for the performance of functions under this Order and coordinate the performance of such functions with the total national preparedness programs.

**SECTION 104. GENERAL AND SPECIFIC FUNCTIONS.** The functions assigned by Part 30, General Provisions, apply to all departments and agencies having emergency preparedness responsibilities. Specific functions are assigned to departments and agencies covered in Parts 2 through 29.

**SECTION 105. CONSTRUCTION.** The purpose and legal effect of the assignments contained in this order do not constitute authority to implement the emergency plans prepared pursuant to this order. Plans so developed may be effectuated only in the event that authority for such effectuation is provided by a law enacted by the Congress or by an order or directive issued by the President pursuant to statutes of the Constitution of the United States.

### **PART 13—DEPARTMENT OF TRANSPORTATION**

**SECTION 1301. RESUME OF RESPONSIBILITIES.** The Secretary of Transportation, in carrying out his responsibilities to exercise leadership in transportation matters affecting the national defense and those involving national or regional transportation emergencies, shall prepare emergency plans and develop preparedness programs covering:

(1) Preparation and promulgation of over-all national policies, plans, and procedures related to providing civil transportation of all forms—air, ground, water, and pipelines, including public storage and warehousing (except storage of petroleum and gas and agricultural food resources including cold storage): *Provided* that plans for the movement of petroleum and natural gas through pipelines shall be the responsibility of the Secretary of the Interior except to the extent that such plans are a part of functions vested in the Secretary of Transportation by law;

(2) Movement of passengers and materials of all types by all forms of civil transportation;

(3) Determination of the proper apportionment and allocation for control of the total civil transportation capacity, or any portion thereof, to meet overall essential civil and military needs;

(4) Determination and identification of the transportation resources available and required to meet all degrees of national emergencies and regional transportation emergencies;

(5) Assistance to the various States, the local political subdivisions thereof, and non-governmental organizations and systems engaged in transportation activities in the preparation of emergency plans;

(6) Rehabilitation and recovery of the Nation's transportation systems; and

(7) Provisions for port security and safety, for aids to maritime navigation, and for search and rescue and law enforcement over, upon, and under the navigable waters of the United States and the high seas.

**SECTION 1302. TRANSPORTATION PLANNING AND COORDINATION FUNCTIONS.** In carrying out the provisions of Section 1301, the Secretary of Transportation, with assistance and support of other Federal, State and local governmental agencies, and the transport industries, as appropriate, shall:

(1) Obtain, assemble, analyze, and evaluate data on current and projected emergency requirements of all claimants for all forms of civil transportation to meet the needs of the military and of the civil economy, and on current and projected civil transportation resources—of all forms—available to the United States to move passengers or materials in an emergency.

(2) Develop plans and procedures to provide—under emergency conditions—for the collection and analysis of passenger and cargo movement demands as they relate to the capabilities of the various forms of transport, including the periodic assessment of overall transport resources available to meet emergency requirements.

(3) Conduct a continuing analysis of transportation requirements and capabilities in relation to economic projections for the purpose of initiating actions and/or recommending incentive and/or regulatory programs designed to stimulate government and industry improvement of the structure of the transportation system for use in an emergency.

(4) Develop systems for the control of the movement of passengers and cargo by all forms of transportation, except for those resources owned by, controlled by, or under the jurisdiction of the Department of Defense, including allocation of resources and assignment of priorities, and develop policies, standards, and procedures for emergency enforcement of these controls.

**SECTION 1303. DEPARTMENTAL EMERGENCY TRANSPORTATION PREPAREDNESS.** Except for those resources owned by, controlled by, or under the jurisdiction of the Department of Defense, the Secretary of Transportation shall prepare emergency operational plans and programs for, and develop a capability to carry out, the transportation operating responsibilities assigned to the Department, including but not limited to:

(1) Allocating specifically designated civil air carrier type aircraft to the Civil Reserve Air Fleet (CRAF) and to the War Air Service Program (WASP).

(2) Emergency resource management of the National Aviation System, which is the physical complex of civil airmen, aircraft (including air carrier and general aviation aircraft), airports, airspace and facilities and services, regulations, plans, standards, procedures and practices associated with the complex, for emergency management of the National Airspace System, and for control of civil and military air traffic, except as provided in Part 15 herein. In the performance of these responsibilities:

(a) The Secretary of Transportation, assisted by the Civil Aeronautics Board as appropriate, shall, with respect to WASP and CRAF aircraft, be responsible for the functions enumerated in Sections 3001 (excluding evaluation), 3002, 3003 and 3005. When CRAF is activated by the Secretary of Defense, the Secretary of Transportation retains the responsibility for the claimancy function for CRAF aircraft.

(b) The Secretary of Transportation, assisted by the Secretary of Defense, shall, with respect to the CRAF program, specifically when civil air carrier aircraft allocated thereto are withdrawn for use in the program, retain responsibility for claimancy as provided in Section 3001.

(3) Emergency resource management of all Federal, State, city, local, and other highways, roads, streets, bridges, tunnels, and appurtenant structures, and publicly-owned highway maintenance equipment, including:

(a) The adaptation, development, construction, reconstruction, and maintenance of the nation's highway and street systems to meet emergency requirements; and

(b) The regulation of highway traffic in an emergency through a national program in cooperation with all Federal, State, and local governmental units concerned to assure efficient and safe utilization of available road space.

(4) Emergency plans for urban mass transportation, including:

(a) Providing guidance to urban communities in their emergency mass transportation planning efforts, either directly or through State, regional, or metropolitan agencies;

(b) Coordinating all such emergency planning with the Department of Housing and Urban Development to assure compatibility with emergency plans for all other aspects of urban development;

(c) Maintaining an inventory of urban mass transportation systems.

(5) Maritime safety and law enforcement over, upon, and under the high seas and waters, subject to the jurisdiction of the United States, in the following specific programs:

(a) Safeguarding vessels, harbors, ports, and waterfront facilities from destruction, loss or injury, accidents, or other causes of a similar nature.

(b) Safe passage over, upon, and under the high seas and United States waters through effective and reliable systems of aids to navigation and ocean stations.

(c) Waterborne access to ice-bound locations in furtherance of national economic, scientific, defense, and consumer needs.

(d) Protection of lives, property, natural resources, and national interests through enforcement of Federal law and timely assistance.

(e) Safety of life and property through regulation of commercial vessels, their officers and crew, and administration of maritime safety law.

(f) Knowledge of the sea, its boundaries, and its resources through collection and analysis of data in support of the national interest.

(g) Operational readiness for essential wartime functions.

(6) Planning for the emergency management and operations of the Alaska Railroad, and for the continuity of railroad and petroleum pipeline safety programs.

(7) Planning for the emergency operation and maintenance of the United States-controlled sections of the Saint Lawrence Seaway.

**APPENDIX B**  
**ARMY REGULATION 55-355 PARAGRAPH 109008**  
**HIGHWAY TRAFFIC REGULATION**

**Highway Traffic Regulation.** Federal Highway Administration (FHWA), under the Secretary of Transportation, is responsible for planning a highway traffic regulation system to facilitate the orderly flow of traffic under a national emergency situation. This planning function includes, but is not limited to, evacuation, regulation of movement through dangerous areas, and clearance of priority traffic over routes of limited capacity. Highway traffic regulation demands the participation and teamwork of highway and police officials working in close association with emergency transportation organizations and organized highway users. In an emergency, highway traffic regulation centers established at State and district levels and highway traffic sectors established at county, city, or metropolitan area levels, will determine how the highway network is to be operated, and will allocate road space, as necessary, to meet movement priorities and precedence established by other emergency transportation organizations. The emergency highway traffic regulation organization is not responsible for the provision or allocation of motor vehicles to shippers nor for designating priorities of movements. The control centers and sectors will operate highway traffic regulation posts, as necessary, to control access to and movements on

various highways. All highway traffic regulation operations will be decentralized to the maximum extent possible consistent with the attainment of the overall objectives. Implementation and direction of highway traffic regulation will be exercised on routes only where and so long as traffic demand exceeds traffic capacity and, in restricted areas, on routes where and so long as highway users must be protected from exposure to radiological or other hazards. Priority permits will be required for a vehicle to traverse a regulated highway route. The carrier (or driver of the vehicle) will secure the necessary permit(s) by presenting the Government bill of lading, waybill, transportation request, or other transportation document to the appropriate control center, sector, or post. Normally, permit requests for interstate, intrastate, or local movements will be handled by control center, sector, or post personnel, respectively. When carriers are unable to secure permits for the movement of DOD personnel and freight, transportation officers, when requested by carriers, will assist to the extent possible in obtaining the necessary permits. When such assistance is unsuccessful, transportation officers may contact their MTMC area commander for further support in accordance with the provisions of paragraph 104002. The necessity for any such movement must be clearly indicated.

## APPENDIX C

15 December 1982

AR-55-80/OPNAVINST 11210.1B/  
AFR 75-88/MCO 11210.2C/DLAR 4500.19

### CHAPTER 4 SPECIAL DEFENSE USE OF PUBLIC HIGHWAYS

**4-1. General.** Special Defense use of public highways is subject to the laws and regulations of the States and political subdivisions. This does not apply for overriding and urgent military necessity.

#### **4-2. Military vehicle—highway relationships.**

a. Highways today are designed to serve the national defense for many years. However, their functional (geometric) clearance and other physical makeup still may have limitations. Legal limits can be exceeded by a reasonable amount when there is good reason; however, when scientifically established physical limitations are exceeded, it reduces the effectiveness of a highway. It may also increase maintenance for its continual use and cause permanent damage. This will require the highway to be reconstructed. Highways and bridges are not expendable and, if seriously damaged or destroyed, they cannot be repaired or replaced during a major emergency, except for isolated cases.

b. A few special purpose and tactical military vehicles must be developed that are larger or weigh more than legally permitted on public highways. Accordingly, during the development of land vehicles which exceed the criteria in AR 70-44/OPNAVINST 4600.22B/AFR 80-18/MCO 4610.14 C/DLAR 4500.25, the transportability agencies will inform the Commander, MTMC, of the proposed vehicles. The length, width, height, axle spacing and load, gross weight, type, size and pressure of tires, and turning radius will be included. The Commander, MTMC, will furnish comments and recommendations to the transportability agency. Established joint policies and official working relationships with States will be explained in the comments.

c. The transportability agency will inform Commander, MTMC, when standardization is started on vehicles that, when transporting a load for which designed, exceed the aforementioned limitations and criteria. This applies to all items transported on highway vehicles. The nature of the vehicles or items and the numbers that may be procured will be given. This will insure that proper action is taken on the design and the use of public highways.

d. In developing vehicles, materiel, or components of materiel, the agency will keep the contractor informed of sizes and weights that are not to be exceeded.

#### **4-3. Special military movements.**

a. Military movements over public highways that exceed legal size or weight, or any other special military movement, will comply with paragraph 1-6.

b. To request permits for oversize, overweight, or other special military movements on public highways, and report on movements that cannot be made, see AR 55-162/OPNAVINST 4600.11D/AFR 75-24/MCO 4643.5C/DLAR 4540.8. That regulation cites a directory of individuals in each State and DOD who will be contacted for permits. The Commander, MTMC prepares and publishes the directory.

c. The policy of the American Association of State Highway and Transportation Officials, during peacetime, designates DOD to be the sole certifying agency for all movements declared essential to the national defense. During a national emergency, movements would be far greater in scope. Therefore those not under direct control of the military departments or Defense agencies would be certified by the proper emergency transportation authority.

d. The Commander, MTMC, will develop and coordinate policy and related procedures for special military movement on public highways. This will be done in cooperation with the American Association of State Highway and Transportation Officials and the FHWA.

e. When the type or frequency of military movements are expected to damage public highways, follow procedures in chapter 3.

#### **4-4. Emergency highway traffic regulation.**

a. During a national emergency, civil authorities may have to regulate traffic on public highways for safe and quick movements of priority personnel and materiel (Executive Order 11490). This may require regulating movements through dangerous areas or clearing priority traffic over routes of limited capacity. Regulating the traffic insures the highest

degree of highway use under adverse conditions. This will be done on routes only where and when traffic demand exceeds traffic capacity. This will also be done in restricted areas where and when highway users must be protected from exposure to radiological or other hazards. The main function of highway traffic regulation is to allocate available road space to meet movement priorities.

b. Emergency highway traffic regulation requires close cooperation of the Federal Government, the State highway departments, State and local police, and highway users, including the military.

(1) The FHWA will develop a national program to effectively regulate emergency highway traffic.

(2) The Commander, MTMC, will insure that FHWA integrates the operational requirements of the military departments into this national program. MTMC will inform DCSOPS, DA promptly of any actual or foreseen interference with military operational requirements.

(3) State authorities will develop plans to regulate emergency highway traffic in their area. These plans must be within the general guidelines of the national program. State authorities will:

- (a) Estimate highway capacities,
- (b) Provide information on the location and intensity of hazards,
- (c) Determine available routes in their highway network, and
- (d) Provide for police enforcement.

(4) Local plans implement and supplement the State's organization and plan.

(5) At State and local levels, the highway user groups will be permitted under established national priority guidelines, to operate over regulated highways.

(6) As directed by CG, FORSCOM, each CONUS Army commander and senior Army commanders for Alaska and Puerto Rico will prepare plans for their installations and activities to take part. The plans will contain responsibilities and guidance for the installation on taking part in emergency highway operations. CG, Western Command, will prepare plans for installations and activities in Hawaii.

(7) Upon request from the CONUS Army, commanders of DOD installations will provide responsible and knowledgeable people to represent the military at State and local levels.

## APPENDIX D

U. S. DEPARTMENT OF TRANSPORTATION	
FEDERAL HIGHWAY ADMINISTRATION	
FEDERAL-AID HIGHWAY PROGRAM MANUAL	
VOLUME 4	PLANNING AND POLICY DEVELOPMENT
CHAPTER 7	EMERGENCY PREPAREDNESS
SECTION 2	EMERGENCY STANDBY ORDERS

SUBSECTION 1 PROTECTION OF CRITICAL HIGHWAY FACILITIES  
AGAINST SABOTAGE

Transmittal 357  
July 11, 1983  
HHP-10

- Par. 1. Purpose  
2. Implementation  
3. Policy  
4. Critical Facility Determination  
5. Security Measures for Highway Facilities  
6. Summary

1. PURPOSE. To outline the need for, and to set forth recommended actions concerning the protection of critical highway facilities against sabotage.

2. IMPLEMENTATION

- a. Highway facilities that are critical and vulnerable should be identified and arrangements should be made for their protection, before the emergency.
- b. The security aspects of this directive should be effective when:
- (1) there is a threat of a covert attack (e.g. during a period of international tension) or
  - (2) there is a possibility of acts of sabotage being perpetrated by a dissident group or groups.

3. POLICY

- a. Effective planning and policy formulation by the State highway agencies (SHAs) can minimize the adverse effects of sabotage. It is the responsibility of the Federal Highway Administration (FHWA) to encourage the SHAs to develop plans for the protection of critical highway facilities and resources. The FHWA will also make every possible effort to provide the States with intelligence concerning possible covert action.
- b. In addition, the FHWA will advise the SHAs on procedures for selection of facilities to be protected and techniques to be used in protecting these facilities.

4. CRITICAL FACILITY DETERMINATION

- a. Selected management representatives of the SHAs should evaluate existing highway facilities within the State and identify those that are critical and/or vulnerable. A facility is considered critical if its loss would seriously impair transportation in an important corridor. A facility is considered vulnerable if it is particularly susceptible to damage by a potential saboteur. Facilities that are both critical and vulnerable should be given priority in any protection program.
- b. Important factors for determining the criticality of a highway facility are:
  - (1) the average daily traffic count,
  - (2) the replacement factor, i.e., that period of time necessary to restore the facility if it were damaged or destroyed,
  - (3) the availability of alternate routes,
  - (4) the importance of the facility to defense, production and/or military operations, and
  - (5) functional classification.
- c. Important factors for determining the vulnerability of a highway facility are:

- (1) the susceptibility of the facility involved to damage by an explosive charge,
- (2) the susceptibility of the facility involved to a planned traffic incident,
- (3) the ease of access to the facility by outsiders, and
- (4) the flammable nature of certain materials that are normally stored in areas such as equipment yards near the facility.

5. SECURITY MEASURES FOR HIGHWAY FACILITIES

a. The most critical and vulnerable highway facilities are bridges and tunnels. During a period of international tension and crisis including war or as a result of threatened dissident action, it may become necessary to implement all available security measures in order to protect certain bridges and/or tunnels. Normally, the SHAs cannot be expected to provide the personnel for around-the-clock guard forces. Therefore, it is recommended that the SHAs make arrangements to obtain assistance from State or local law enforcement agencies, National Guard units, State militia units, or other military forces situated in the immediate vicinity of the bridge and/or tunnel. Guidelines for providing protective measures for bridges and/or tunnels are listed below:

- (1) Guard forces can be ambulatory and/or in a motor patrol.
- (2) Guards should be placed at each end of the bridge/tunnel and possibly at intervals along the span or inside the tunnel. Traffic should not be stopped unless a search of every vehicle traversing the route is necessary.
- (3) Security forces should be armed. The controlling authority(ies) of these forces should provide a thorough indoctrination in use of weapons.
- (4) Flood lighting may be necessary to light tunnel entrances, abutments, and piers.

- (5) Patrol boats may be required to provide added surveillance for the substructure of certain bridges.
  - (6) Surveillance of the draw mechanism of drawbridges should be provided.
  - (7) The feasibility of closed-circuit TV systems should be explored.
- b. Appropriate measures should be taken to protect other critical highway facilities when there is a threat of an attack or a distinct possibility of dissident action. Listed below is a summary of the more common measures employed for the protection of operating facilities, equipment yards, etc.:
- (1) Obtain the assistance of law enforcement agencies, National Guard, State militia, etc.
  - (2) Establish a security organization.
  - (3) Erect perimeter fencing to deter potential intruders.
  - (4) Provide additional lighting for areas that are vulnerable to intrusion.
  - (5) Establish a system of identification and control of access to and egress from sensitive areas.
  - (6) Develop a fire prevention program in coordination with local fire officials and encourage the active participation of all employees.
  - (7) Develop a plan for alerting key officials and test the plan frequently.
  - (8) Develop an evacuation plan for operating facilities and test the plan frequently.
  - (9) Determine if there is a need to install an intrusion detection system(s) in specified areas of operating facilities.

- (10) Develop an intelligence reporting system in the community which would include provisions for the reporting of any suspicious activities around critical highway installations by local citizens.

6. SUMMARY. There is no uniform concept of operations to prevent sabotage incidents which can be applied in all cases. The protective measures described in this directive have proven valuable to all types of organizations. It is recommended that they be seriously considered for implementation where appropriate by State highway officials when an attack on the United States is imminent or when there is a possibility of covert destructive actions by a dissident group or groups. Many of these security measures require an appreciable expenditure of staff and equipment. Management must weigh the use of these resources against an improved security posture.

U. S. DEPARTMENT OF TRANSPORTATION

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SUBSECTION 2 OPERATIONAL STATUS REPORTING

Transmittal 357  
July 11, 1983  
HHP-10

- Par. 1 Purpose  
2. Policy  
3. Report Contents  
4. Reporting Schedule
1. PURPOSE. To establish uniform procedures for reporting the operating capability of the Federal Highway Administration (FHWA), the State highway agencies (SHAs) and the highway system commencing during periods of increased international tension and terminating in the early postattack time period.
  2. POLICY. It is the policy of the FHWA to have its regional offices report (by any means possible) at appropriate intervals during periods of increased international tension and during the initial phase of a national emergency the then current status of the FHWA's division and regional offices, the SHAs and the highway system. Division offices should report to their regional offices. Regional offices should forward a consolidated report to the FHWA Washington Headquarters.
  3. REPORT CONTENTS. Reports should include the following information keyed to the same alphabetical designations:
    - a. Brief outline of major highway transportation problems in each State.
    - b. Location at which the regional office is operating with specifics concerning various means of communication, e.g., telephone numbers, radio frequencies, etc.

- c. Location at which each division office is operating with specifics concerning various means of communication, e.g., telephone numbers, radio frequencies, etc.
- d. Location at which each SHA is operating with specifics concerning various means of communication, e.g., telephone numbers, radio frequencies, etc.
- e. Operational capability of the FHWA regional and division offices including an estimate of the number of personnel available for duty.
- f. Operational capability of the SHAs including an estimate of the number of personnel available for duty.
- g. Other pertinent information.

4. REPORTING SCHEDULE

- a. A report should be submitted upon direction after the declaration of INITIAL ALERT or ADVANCED ALERT or before an event having a significant effect on highway transportation.
- b. Changes in the initial report should be submitted only when changes occur.

U. S. DEPARTMENT OF TRANSPORTATION  
**FEDERAL HIGHWAY ADMINISTRATION**  
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VOLUME	4	PLANNING AND POLICY DEVELOPMENT
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SECTION	2	EMERGENCY STANDBY ORDERS

SUBSECTION 3 DAMAGE ASSESSMENT AND REPORTING

Transmittal 357  
July 11, 1983  
HHP-10

- Par. 1. Purpose  
2. Responsibilities  
3. Background  
4. Procedures

1. PURPOSE. To provide for the determination and reporting, with the assistance of State highway agencies (SHAs), of the extent of damage from an attack to a selected system of the Nation's highways, roads, streets, bridges, and tunnels. Reporting procedures include provisions for reporting the amount of debris and radiation levels on this selected system of highways.
2. RESPONSIBILITIES. In the event of a national emergency as a result of an enemy attack, the Federal Highway Administration (FHWA) has the following responsibilities:
  - a. Collection and evaluation of reports of the extent of damage to selected portions of the Nation's highways, roads, streets, bridges and tunnels, including reports of partial or total interdiction of these facilities.
  - b. Maintenance of the FHWA official map showing damage and other restrictions to the use of highways as reported.
  - c. Provision of advice and guidance on long-distance routing of important highway movements.
3. BACKGROUND
  - a. A computer damage assessment analysis will be made by the Federal Emergency Management Agency during the transattack and early postattack periods. This

analysis will be based on data previously furnished in accordance with FHPM 6-10-2, Defense Bridges and Critical Highways Facilities Reports, and strike information provided by the Department of Defense and other sources.

- b. A damage assessment will be performed by the SHAs in cooperation with the FHWA as early as conditions permit after attack. It is this assessment upon which this directive is focused.

4. PROCEDURES. The postattack field assessment of damage to and/or denial of highways and highway facilities will be made primarily by the SHAs with FHWA assistance where required. The following instructions are based on the availability of any suitable communications media although the report format is primarily designed for teletype or facsimile transmission. These instructions are intended specifically for use in a national emergency resulting from an attack or in the event of an act of sabotage.

- a. The highway network on which damage is to be reported consists of those highways selected by the SHAs in accordance with provisions of FHPM 6-10-2. Identification of road sections and structures on this selected system is also based upon FHPM 6-10-2. Copies of this document shall be maintained at all relocation sites.
- b. Normally the reports will be prepared by each division office in cooperation with the SHA as soon as any definite information on highway damage or restrictions on the use of highways due to radiation is available. The report should be forwarded to the regional office which will in turn forward it to the FHWA Washington Headquarters. If a division office cannot communicate with its regional headquarters, the division office should, if possible, submit the report directly to the FHWA Washington Headquarters. Each report should be numbered in sequence. The regional office should number its damage reports serially and should indicate in the heading the source(s) of the report, e.g., Pennsylvania Division reports 1 and 2. Regional reports may include reports from more than one division.

- c. Reports should be submitted on those road sections damaged to the extent that the capacity is restricted and/or those that would be hazardous for essential traffic under controlled conditions from a radiological standpoint. The extent of structural damage, replacement or repair time, operational status, and the effects of radiation on a particular section should be reported in accordance with the instructions contained in Attachment 1.
- d. The description of damage report headings and codes is shown in Attachment 1. In those instances where the situation cannot be adequately covered by the codes furnished, brief narrative statements should be included. Attachment 2 illustrates a sample report.

DESCRIPTION OF DAMAGE REPORT HEADINGS AND CODES

Note: A summary line should be included at the beginning of each section containing one or more damaged structures. The line should show the section number, route number, section length, maximum structural damage occurring in the section, maximum repair time for the most extensive damage in the section, the operational status reflecting the most extensive damage in the section and the maximum radiation existing in the section.

Column I Road section number - This is the number shown on the State bridge index map.

Column II Location of bridge damage, highway damage or highest radiation measurement in miles from the beginning of section (hundredths).

For bridges the mileage is given to the nearest hundredth of a mile and increases in the direction of increasing section numbers. This mileage value, in conjunction with the Road Section Number and Bridge Description, provides a unique identification for each bridge in the report.

Highway damage and radiation points would have to be recorded on a mileage indicator.

Note: When reporting a section summary, show SS in Column II.

Column III Bridge Description -

Note: Show in Column III the appropriate code for one of the three situations below if reporting one of those situations.

- |                            |    |
|----------------------------|----|
| (1) section summary        | SS |
| (2) only highway damage    | D  |
| (3) radiation restrictions | R  |

Otherwise, the following bridge description should be coded in Column III.

Bridge description: (This is an alphanumeric code that helps identify the bridge.)

- P For situations where separate structures carry two roadways in two directions of travel. The structure carrying the roadway in the direction of survey will show nothing (leave blank) in this column. The parallel structure carrying the roadway in the opposite direction will show the same mileage in Column II and in this column will show a "P."
- T For temporary structures erected for the purpose of carrying traffic during the repair or replacement of an old structure.
- U For underpass. This will be used only when a structure goes over a defense highway section.
- UA For underpasses where the structure is reported on a defense highway section that is carried by the structure.
- 1 For a structure on the second level at an interchange whether or not there are more than two levels. The first level is the lowest roadway.
- 2 A structure on the third level of a multiple level interchange.
- 3 For a structure on the fourth level of a multiple level interchange.

Column IV

The number of the route and its system type should be printed in the following examples:

- (1) I XX for Interstate routes.
- (2) US XX for U.S. numbered routes.
- (3) S XXX for State routes.
- (4) XXXXX for county, or other lower system routes, if numbered or lettered.

Column V

Length of Section - The length of the section identified in Column I should be shown to the nearest tenth of a mile.

Column VI Length of Structure - The total length of the structure to the nearest foot is to be shown.

Note: Column VI should show the appropriate code for one of the three situations below if reporting one of those situations.

- |                            |    |
|----------------------------|----|
| (1) section summary        | SS |
| (2) only highway damage    | D  |
| (3) radiation restrictions | R  |

Column VII Damage

Note: If reporting only radiation restrictions, show R in this column.

Position 1 (X \_ \_) Extent of Structural Damage

- H = Highway damage--report H when there is damage to the highway surface or when there is sufficient debris to cause a road closure.
- L = Light--the resultant structural damage does not prevent the immediate use of the facility (possibly with restrictions).
- M = Moderate--is defined as structural damage that does not extend beyond the point where repair is more costly than replacement.
- S = Severe--damage to a facility is so great that it would be more economical to build anew than to repair the damage.

Position 2 (\_ X \_) Cause of Damage

Based on the best available information:

- A = Nuclear weapon
- S = Sabotage
- U = Unknown

Position 3 (\_ \_ X) Reliability of Report

- X = High--visual inspection by an engineer(s).

Y = Reasonable--visual inspection by a competent source other than an engineer(s).

Z = Questionable--other than "X" or "Y" above.

Column VIII Time required to make repair:

Note: If reporting only radiation restrictions, show R in this column.

Position 1 (X \_ \_) Permanent Repairs

- 1 = one week or less
- 2 = one week to one month
- 3 = one to three months
- 4 = three to six months
- 5 = six to twelve months
- 6 = over one year

Position 2 (\_ X \_) Temporary Repairs

- 1 = one week or less
- 2 = one week to one month
- 3 = one to three months
- 4 = three to six months
- 5 = six to twelve months
- 6 = over one year

Position 3 (\_ \_ X) Reliability of Estimate

- X = High (see Column VII, position 3)
- Y = Reliable (see Column VII, position 3)
- Z = Questionable (see Column VII, position 3)

Column IX Operational Status

Position 1 (X \_ \_) Physical Restrictions

- 1 = Open - no physical restrictions
- 2 = Open - weight restrictions
- 3 = Open - speed restrictions
- 4 = Open - weight and speed restrictions
- 5 = Closed - bypass available
- 6 = Closed - no bypass available

Position 2 (\_ X \_) Radiation restrictions

- 1 = No radiation hazard
- 2 = Open to controlled traffic
- 3 = Closed

Position 3 ( \_ \_ X ) Reliability

- X = High (see Column VII, position 3)
- Y = Reliable (see Column VII, position 3)
- Z = Questionable (see Column VII, position 3)

- Column X      Radiation Intensity (allow 5 positions)
- Roentgens per hour at either the location of a damaged bridge structure or highway damage. If neither of the two aforementioned situations exists, the reading indicated describes the highest radiation on that section. (This rule applies also to a section summary.)
- Column XI      Date of Inspection (allow 5 positions)
- Report the month and day (MM-DD) on which the inspection was made.

Based on the preceding instructions, five examples of the five most common types of entries required to complete the damage report are shown below:

(1) Section summary

I	II	III	IV	V	VI	VII	VIII	IX	X	XI
235	SS	SS	S32	25.6	SS	SAY	63Z	63Z	21.0	10-24

(2) A damaged structure

150	6.78	P1	S1	27.3	34	SAY	53Y	63Z	23.5	10-23
-----	------	----	----	------	----	-----	-----	-----	------	-------

(3) A section with highway damage and radiation restrictions but no bridge damage:

55	8.35	DR	US2	17.2	DR	HAX	22Y	63Z	24.5	10-23
----	------	----	-----	------	----	-----	-----	-----	------	-------

(4) A section with highway damage only:

305	8.70	D	S69	18.2	D	HUY	21Y	51Y	0.0	10-24
-----	------	---	-----	------	---	-----	-----	-----	-----	-------

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(5) A section with radiation restrictions only:

50 1.30 R US2 5.5 R R R 13Z 21.0 10-24

SAMPLE REPORT

Region \_\_\_\_\_ Damage Report No. 3

Source \_\_\_\_\_ Division Damage Report No. 1

I	II	III	IV	V	VI	VII	VIII	IX	X	XI
5	SS	SS	I 94	13.0	SS	SSX	64X	61X	0.0	10-15
5	4.52		I 94	13.0	1125	SSX	64X	61X	0.0	10-15
30	SS	SS	US 2	42.6	SS	SAY	22Y	53Z	15.0	10-22
30	24.21		US 2	42.6	30	SAY	22Y	53Z	12.0	10-22
35	SS	SS	US 2	12.3	SS	SAY	42Y	63Z	22.0	10-22
35	6.30		US 2	12.3	150	SAY	42Y	63Z	20.0	10-22
40	3.70	R	US 2	4.2	R	R	R	13Z	24.0	10-22
45	4.10	R	US 2	6.0	R	R	R	13Z	23.5	10-22
50	1.30	R	US 2	5.5	R	R	R	13Z	26.0	10-22
55	8.35	D	US 2	17.2	D	HAX	22Y	63Z	24.5	10-22
60	SS	SS	US 2	47.0	SS	SAZ	63Z	63Z	22.3	10-22
60	18.87		US 2	47.0	134	SAZ	63Z	63Z	20.5	10-22
105	SS	SS	US 83	37.6	SS	SAX	65Y	63Z	30.9	10-22
105	10.02		US 83	37.6	974	SAX	65Y	63Z	30.3	10-22
105	17.76		US 83	37.6	1003	SAX	65Y	63Z	30.0	10-22
150	SS	SS	S 1	27.3	SS	SAY	53Y	63Z	25.0	10-23
150	6.78		S 1	27.3	34	SAY	53Y	63Z	23.5	10-23
150	6.78	P1	S 1	27.3	34	SAY	53Y	63Z	23.5	10-23
155	SS	SS	S 1	24.0	SS	SAX	63Y	63Z	28.5	10-23
155	9.76		S 1	24.0	42	SAX	63Y	63Z	26.7	10-23
155	13.21		S 1	24.0	30	SAX	63Y	63Z	27.4	10-23
170	11.10	R	S 5	22.7	R	R	R	13Z	29.5	10-23
175	15.30	R	S 5	20.5	R	R	R	13Z	27.2	10-23
185	SS	SS	S 5	21.9	SS	SAY	53Y	63Z	29.5	10-23
185	2.22		S 5	21.9	53	SAY	42X	63Z	29.5	10-23
185	7.69		S 5	21.9	65	SAY	42X	63Z	26.5	10-23
185	15.25		S 5	21.9	84	MAY	53Y	63Z	28.0	10-23
185	18.67		S 5	21.9	32	MAY	53Y	63Z	25.9	10-23
230	SS	SS	S 5	27.0	SS	MAX	42Y	53Z	21.0	10-24
230	15.68		S 5	27.0	80	MAX	42Y	53Z	20.5	10-24
235	SS	SS	S 32	25.6	SS	SAY	63Z	63Z	21.0	10-24
235	1.11		S 32	25.6	63	SAX	53Z	63Z	16.0	10-24
235	4.52		S 32	25.6	27	SAX	53Z	63Z	15.0	10-24
235	4.52	P	S 32	25.6	27	SAX	53Z	63Z	15.5	10-24
235	6.71		S 32	25.6	60	SAX	53Z	63Z	17.5	10-24
235	8.89		S 32	25.6	70	MAX	53Y	63Z	21.0	10-24
235	11.12		S 32	25.6	68	SAX	53Y	63Z	20.5	10-24
235	14.72		S 32	25.6	26	SAY	63Y	63Z	19.0	10-24
235	18.76		S 32	25.6	34	SAY	63Y	63Z	14.0	10-24
305	8.70	D	S 69	18.2	D	HUY	21Y	51Y	0.0	10-24

U. S. DEPARTMENT OF TRANSPORTATION <b>FEDERAL HIGHWAY ADMINISTRATION</b> <b>FEDERAL-AID HIGHWAY PROGRAM MANUAL</b>	
VOLUME 4	PLANNING AND POLICY DEVELOPMENT
CHAPTER 7	EMERGENCY PREPAREDNESS
SECTION 2	EMERGENCY STANDBY ORDERS

SUBSECTION 4 ESTABLISHMENT OF EMERGENCY HIGHWAY TRAFFIC  
REGULATION (EHTR)

Transmittal 357  
July 11, 1983  
HHP-10

- Par. 1. Purpose  
 2. EHTR Program  
 3. Implementation  
 4. Responsibilities

1. PURPOSE. To outline policies, responsibilities and procedures relating to Emergency Highway Traffic Regulation (EHTR) activities and provide for the implementation of such activities before and after an attack on the United States or during a major peacetime disaster.

2. EHTR PROGRAM

- a. Operational readiness requires the establishment of an EHTR organization prior to the need to conduct EHTR operations following a natural disaster, technological disaster, or an attack on the United States. This organization shall be adequate to operate a system of traffic management and control designed to regulate the use of highways and facilitate urgent highway movements during emergency conditions. Each State EHTR organization will be staffed by representatives of the State highway agency, State traffic law enforcement agency, and highway user organizations. Liaison with the United States Military and State emergency services/civil defense agency should be established in order to facilitate State emergency plans. The function of the EHTR organization is to manage the utilization of the highway system during time of emergency to include protection of the highway user and the rationing of road space. The establishment of

transportation priorities for cargo and personnel movements is a function of the Federal and State transportation organizations and not the EHTR organization.

- b. Guidelines concerning the detailed operation of the EHTR program are contained in a A Guide for Emergency Highway Traffic Regulation, published by the Federal Highway Administration (FHWA).
- c. The EHTR program is decentralized throughout the country. It becomes operational at the direction of Federal transportation officials or State emergency management authorities. Each State shall have an EHTR plan which contains procedures for the implementation and conduct of statewide EHTR operations. The EHTR will be activated under the following conditions:
  - (1) When highway users must be protected from fallout resulting from a nuclear attack.
  - (2) When traffic demand exceeds highway capacity.
  - (3) When unauthorized traffic should be excluded from a specific area.

3. IMPLEMENTATION. The implementation of EHTR will be made effective upon direction of the Federal Highway Administrator following an attack upon the United States or by the State emergency management authorities following a natural or technological disaster. The following situations could arise:

- a. The Federal Highway Administrator may make the order effective upon a specified date and delegate final decisionmaking authority to the Regional Federal Highway Administrator(s) with authority to redelegate (see Attachment 1).
- b. In a defense emergency situation, when communications are disrupted within the FHWA, this order is effective and all the authorities therein are available to the Regional Federal Highway Administrators as soon as there is reason to believe that the President has issued pertinent instructions.

- c. If a natural disaster such as a hurricane, flood, earthquake, or volcano eruption should occur or a technological disaster (such as an emergency evacuation of the area surrounding a nuclear power plant or hazardous materials transportation incident), EHTR can be implemented by State emergency management officials under the State statutory authority.

#### 4. RESPONSIBILITIES

- a. Each State is responsible for the annual review of its EHTR plan. Upon recommendation of the FHWA Regional Administrator, the FHWA Washington Office of Traffic Operations may determine that an annual update is not necessary. These revisions will result from changing national policies, State laws and experience resulting from the use of State plans as EHTR training tools. State plans and changes in these plans should be submitted prior to publication through channels to the FHWA Washington Headquarters for approval.
- b. The FHWA has the responsibility for coordinating the development of comprehensive State plans for the regulation of traffic in an emergency. The regional and division offices of FHWA will work with the appropriate State agencies in implementing their programs, including the development of appropriate records, displays, etc., on which can be recorded the routes that are impassable due to the existing emergency. These offices will also be prepared to resolve problems of a multistate nature if State efforts to effect a workable solution fail.

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Vol. 4, Ch. 7, Sec. 2  
Subsec. 4, Attach. 1

TELETYPE

TO: Administrators, FHWA Region(s) \_\_\_\_\_

Volume 4, Chapter 7, Section 2, Subsection 4 of the Federal-Aid Highway Program Manual entitled "Establishment of Emergency Highway Traffic Regulation (EHTR)" is effective

\_\_\_\_\_  
Date

You are delegated the authority, with authority to redelegate, for the taking of all necessary actions required by this order.

\_\_\_\_\_  
Federal Highway Administrator

\_\_\_\_\_  
Date