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VOLUME 8

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REPORT 525

VOLUME 8

Continuity of Operations (COOP) Planning Guidelines for Transportation Agencies

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**Transit Cooperative Research Program
and
National Cooperative Highway Research Program**

TCRP REPORT 86/NCHRP REPORT 525

TRANSPORTATION SECURITY

**Volume 8:
Continuity of Operations (COOP)
Planning Guidelines
for Transportation Agencies**

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WASHINGTON, D.C.

2005

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TRANSIT COOPERATIVE RESEARCH PROGRAM

The nation's growth and the need to meet mobility, environmental, and energy objectives place demands on public transit systems. Current systems, some of which are old and in need of upgrading, must expand service area, increase service frequency, and improve efficiency to serve these demands. Research is necessary to solve operating problems, to adapt appropriate new technologies from other industries, and to introduce innovations into the transit industry. The Transit Cooperative Research Program (TCRP) serves as one of the principal means by which the transit industry can develop innovative near-term solutions to meet demands placed on it.

The need for TCRP was originally identified in *TRB Special Report 213—Research for Public Transit: New Directions*, published in 1987 and based on a study sponsored by the Urban Mass Transportation Administration—now the Federal Transit Administration (FTA). A report by the American Public Transportation Association (APTA), *Transportation 2000*, also recognized the need for local, problem-solving research. TCRP, modeled after the longstanding and successful National Cooperative Highway Research Program, undertakes research and other technical activities in response to the needs of transit service providers. The scope of TCRP includes a variety of transit research fields including planning, service configuration, equipment, facilities, operations, human resources, maintenance, policy, and administrative practices.

TCRP was established under FTA sponsorship in July 1992. Proposed by the U.S. Department of Transportation, TCRP was authorized as part of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). On May 13, 1992, a memorandum agreement outlining TCRP operating procedures was executed by the three cooperating organizations: FTA, The National Academies, acting through the Transportation Research Board (TRB); and the Transit Development Corporation, Inc. (TDC), a nonprofit educational and research organization established by APTA. TDC is responsible for forming the independent governing board, designated as the TCRP Oversight and Project Selection (TOPS) Committee.

Research problem statements for TCRP are solicited periodically but may be submitted to TRB by anyone at any time. It is the responsibility of the TOPS Committee to formulate the research program by identifying the highest priority projects. As part of the evaluation, the TOPS Committee defines funding levels and expected products.

Once selected, each project is assigned to an expert panel, appointed by the Transportation Research Board. The panels prepare project statements (requests for proposals), select contractors, and provide technical guidance and counsel throughout the life of the project. The process for developing research problem statements and selecting research agencies has been used by TRB in managing cooperative research programs since 1962. As in other TRB activities, TCRP project panels serve voluntarily without compensation.

Because research cannot have the desired impact if products fail to reach the intended audience, special emphasis is placed on disseminating TCRP results to the intended end users of the research: transit agencies, service providers, and suppliers. TRB provides a series of research reports, syntheses of transit practice, and other supporting material developed by TCRP research. APTA will arrange for workshops, training aids, field visits, and other activities to ensure that results are implemented by urban and rural transit industry practitioners.

The TCRP provides a forum where transit agencies can cooperatively address common operational problems. The TCRP results support and complement other ongoing transit research and training programs.

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The members of the technical advisory panel selected to monitor this project and to review this report were chosen for recognized scholarly competence and with due consideration for the balance of disciplines appropriate to the project. The opinions and conclusions expressed or implied are those of the research agency that performed the research, and while they have been accepted as appropriate by the technical panel, they are not necessarily those of the Transportation Research Board, the National Research Council, the Transit Development Corporation, or the Federal Transit Administration of the U.S. Department of Transportation.

Each report is reviewed and accepted for publication by the technical panel according to procedures established and monitored by the Transportation Research Board Executive Committee and the Governing Board of the National Research Council.

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NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

Systematic, well-designed research provides the most effective approach to the solution of many problems facing highway administrators and engineers. Often, highway problems are of local interest and can best be studied by highway departments individually or in cooperation with their state universities and others. However, the accelerating growth of highway transportation develops increasingly complex problems of wide interest to highway authorities. These problems are best studied through a coordinated program of cooperative research.

In recognition of these needs, the highway administrators of the American Association of State Highway and Transportation Officials initiated in 1962 an objective national highway research program employing modern scientific techniques. This program is supported on a continuing basis by funds from participating member states of the Association and it receives the full cooperation and support of the Federal Highway Administration, United States Department of Transportation.

The Transportation Research Board of the National Academies was requested by the Association to administer the research program because of the Board's recognized objectivity and understanding of modern research practices. The Board is uniquely suited for this purpose as it maintains an extensive committee structure from which authorities on any highway transportation subject may be drawn; it possesses avenues of communications and cooperation with federal, state and local governmental agencies, universities, and industry; its relationship to the National Research Council is an insurance of objectivity; it maintains a full-time research correlation staff of specialists in highway transportation matters to bring the findings of research directly to those who are in a position to use them.

The program is developed on the basis of research needs identified by chief administrators of the highway and transportation departments and by committees of AASHTO. Each year, specific areas of research needs to be included in the program are proposed to the National Research Council and the Board by the American Association of State Highway and Transportation Officials. Research projects to fulfill these needs are defined by the Board, and qualified research agencies are selected from those that have submitted proposals. Administration and surveillance of research contracts are the responsibilities of the National Research Council and the Transportation Research Board.

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The **Transportation Research Board** is a division of the National Research Council, which serves the National Academy of Sciences and the National Academy of Engineering. The Board's mission is to promote innovation and progress in transportation through research. In an objective and interdisciplinary setting, the Board facilitates the sharing of information on transportation practice and policy by researchers and practitioners; stimulates research and offers research management services that promote technical excellence; provides expert advice on transportation policy and programs; and disseminates research results broadly and encourages their implementation. The Board's varied activities annually engage more than 5,000 engineers, scientists, and other transportation researchers and practitioners from the public and private sectors and academia, all of whom contribute their expertise in the public interest. The program is supported by state transportation departments, federal agencies including the component administrations of the U.S. Department of Transportation, and other organizations and individuals interested in the development of transportation. www.TRB.org

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- Miami-Dade Transit, Miami, Florida, Office of Safety and Security; and
- City of Phoenix, Arizona, Traffic Management Center, Department of Streets.

These reviewers contributed greatly to the final product.

FOREWORD

By S. A. Parker
Staff Officer
Transportation Research
Board

This eighth volume of both *NCHRP Report 525: Surface Transportation Security* and *TCRP Report 86: Public Transportation Security* is designed to assist transportation agencies in evaluating and modifying existing plans, policies, and procedures, as called for in the National Incident Management System (NIMS). In his September 8, 2004, letter to state governors, Department of Homeland Security Secretary Tom Ridge wrote that “NIMS provides a consistent nationwide approach for Federal, State, territorial, tribal, and local governments to work effectively and efficiently together to prepare for, prevent, respond to, and recover from domestic incidents, regardless of cause, size, or complexity.”

Many state DOTs and public transportation agencies have emergency response plans that address immediate operational situations; those plans typically do not include contingencies for carrying out emergency response plans either from alternate facilities or over an extended period. Continuity of Operations (COOP) plans describe how an organization will prepare for, respond during, and recover from a disruption in *internal* operations whether caused by naturally occurring or human-caused events. COOP plan implementation, which may include relocation or reassignment of essential functions, can be triggered through (1) denial of use of facilities, (2) loss of power, (3) loss of telecommunications, (4) suddenly unavailable personnel, or (5) inaccessible information technology systems.

The objective of *Volume 8: Continuity of Operations (COOP) Planning Guidelines for Transportation Agencies* is to provide guidelines for state and local transportation agencies to develop, implement, maintain, train for, and exercise COOP capabilities. The guidelines are expected to be applied by designated agency continuity planners using templates to customize COOP plans for their local conditions. The templates and guidelines should provide a managed and measurable process to ensure continuation of essential operations. Execution of these plans helps transportation agencies ensure the performance of critical services even in an operating environment that is threatened, diminished, or incapacitated.

The planning guidelines in this report are supplemented online with downloadable worksheets, a template for a completed COOP plan, a series of brochures that can be used to explain the COOP planning process to staff, a draft PowerPoint presentation that may be customized and presented to transportation executive leadership, and more than 300 resource documents organized in an electronic COOP library.

These guidelines were developed jointly under TCRP and NCHRP. They are appropriate for COOP planning personnel at state and local transportation agencies responsible for all modes of transportation.

McCormick Taylor, Inc., prepared this volume of *NCHRP Report 525/TCRP Report 86* under NCHRP Project 20-59(21)/TCRP Project J-10F.

Emergencies arising from terrorist threats highlight the need for transportation managers to minimize the vulnerability of travelers, employees, and physical assets through incident prevention, preparedness, mitigation, response, and recovery. Managers seek to reduce the chances that transportation vehicles and facilities will be targets or instruments of terrorist attacks and to be prepared to respond to and recover from such possibilities. By being prepared to respond to terrorism, each transportation agency is simultaneously prepared to respond to natural disasters such as hurricanes, floods, and wildfires, as well as human-caused events such as hazardous materials spills and other incidents.

This is the eighth volume of *NCHRP Report 525: Surface Transportation Security* and the eighth volume of *TCRP Report 86: Public Transportation Security*, two series in which relevant information is assembled into single, concise volumes—each pertaining to a specific security problem and closely related issues. These volumes focus on the concerns that transportation agencies are addressing when developing programs in response to the terrorist attacks of September 11, 2001, and the anthrax attacks that followed. Future volumes of the reports will be issued as they are completed.

To develop this volume in a comprehensive manner and to ensure inclusion of significant knowledge, available information was assembled from numerous sources, including a number of state departments of transportation. A topic panel of experts in the subject area was established to guide the researchers in organizing and evaluating the collected data and to review the final document.

This volume was prepared to meet an urgent need for information in this area. It records practices that were acceptable within the limitations of the knowledge available at the time of its preparation. Work in this area is proceeding swiftly, and readers are encouraged to be on the lookout for the most up-to-date information.

Volumes issued under *NCHRP Report 525: Surface Transportation Security* and *TCRP Report 86: Public Transportation Security* may be found on the TRB website at <http://www.trb.org/SecurityPubs>.

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CHAPTER 1

INTRODUCTION

State departments of transportation (DOTs), traffic management centers (TMCs), and public transportation rail and bus agencies differ considerably in their scope of operations, equipment, personnel, and training practices; however, all transportation agencies are committed to providing critical services during emergencies. These guidelines have been developed to help transportation agencies, whether state DOTs, TMCs, or transit agencies, to develop Continuity of Operations (COOP) plans. COOP planning offers transportation agencies a way to define activities that must be performed if an emergency denies access to essential operating and maintenance facilities, vehicle fleets, systems, and senior management and technical personnel. Executing these plans helps transportation agencies ensure the performance of critical services, even in an operating environment that is threatened, diminished, or incapacitated.

These guidelines discuss recommended content for a transportation agency COOP plan. After a brief introduction and description of existing federal requirements for COOP planning, these guidelines cover the following topics:

- Starting COOP planning;
- Identifying system capabilities to deal with emergencies and vulnerabilities within the agency;
- Identifying essential functions of the agency;
- Identifying key personnel, delegations of emergency authority, and orders of succession;
- Determining vital records, systems, and equipment and a process to safeguard and update these items;
- Evaluating needs and selecting an alternate work site;
- Developing an effective interoperable communications plan; and
- Testing and executing the COOP plan and revising it periodically as necessary.

The guidelines in this report are supplemented with electronic versions of all COOP planning worksheets, the COOP plan template in Microsoft® Word, a series of brochures for use in explaining the COOP planning process to employees, a draft PowerPoint presentation that can be customized and presented to transportation executive leadership, and more than 300 resource documents, organized in an electronic COOP library. These resources are available at <http://www.trb.org/SecurityPubs/> and provide additional references, support, and

perspective on COOP practices in transportation and other industries.

BACKGROUND

Transportation operations can be interrupted by a range of naturally occurring and human-caused emergencies, including severe weather, fires, power outages, telecommunication failures, workplace violence, and terrorist attacks. Many of the emergencies that can disrupt transportation operations are as follows:

- Naturally occurring
 - Tornadoes;
 - High winds;
 - Electrical storms;
 - Ice storms;
 - Snowstorms and blizzards;
 - Floods;
 - Earthquakes;
 - Naturally occurring epidemics;
 - Landslides;
 - Hurricanes;
 - Typhoons;
 - Tropical storms;
 - Tsunamis;
 - Wildfires;
 - Droughts;
 - Dust/wind storms;
- Human-caused—intentional
 - Misuse of resources;
 - Security breaches;
 - Theft;
 - Fraud or embezzlement;
 - Fire or arson;
 - Vandalism;
 - Sabotage: external and internal actors;
 - Workplace violence;
 - Bomb threats and other threats of violence;
 - Terrorist assaults using explosives, firearms, or conventional weapons;
 - Terrorist assaults using chemical, biological, radiological, or nuclear agents;

- Labor disputes or strikes;
- Disruption of supply sources;
- Rioting or civil disorder;
- War;
- Hostage taking;
- Aircraft, ship, or port hijacking;
- Human-caused—unintentional
 - Voice and data telecommunications failures or malfunctions;
 - Software or hardware failures or malfunctions;
 - Unavailability of key personnel;
 - Human errors;
 - Power outages: external or internal;
 - Water outages;
 - Gas outages;
 - Heating, ventilating, and air conditioning (HVAC) system failures or malfunctions;
 - Accidental damage to or destruction of physical plant and assets;
 - Accidental contamination or hazardous materials spills;
 - Accidents affecting the transportation system;
 - Uninterruptible power supply (UPS) failure or malfunction; and
 - Inappropriate training on emergency procedures.

Many transportation agencies have plans, policies, standard and emergency operating procedures, checklists, and job aids in place to direct immediate response to various emergency situations. For the most part, these emergency response plans and procedures have performed very well under real-life conditions. Such plans generally describe the basic strategies, assumptions, and mechanisms through which transportation agencies and their local responders will mobilize resources and conduct activities to guide and support efforts for emergency response and recovery. However, detailed review of transportation agency emergency plans often identifies a continuity and recovery void. Conspicuously absent from many of these plans are the steps the transportation agency should perform to maintain essential functions and services during emergencies that limit or deny availability of personnel, facilities, systems, vehicles, or communications.

Without a management framework that clearly identifies essential functions and establishes operational procedures to sustain them when normal operations have been disrupted, transportation agencies remain vulnerable to service interruptions, reduced employee morale, and, perhaps most significantly, loss of public confidence and community support.

PURPOSE OF COOP PLANS

COOP planning has five main goals:

- Ensuring continuous performance of essential agency functions and operations during any situation or emergency that may disrupt normal operations;

- Protecting essential facilities, equipment, records, and other assets;
- Reducing or mitigating disruptions to operations;
- Minimizing loss of life, injury, and property damage; and
- Achieving a timely and orderly recovery and resumption of full service to customers.

COOP planning ensures that the transportation agency has a process to manage events that disrupt the agency's internal operations or that deny access to important locations within the agency's service area. Under certain disruptive conditions, the transportation agency cannot perform its normal business activities. Therefore, COOP plans specify the minimum activities that will be performed by the transportation agency—no matter what the emergency or how it affects the agency's service area.

These minimum activities are called *essential functions* because they are the most important activities necessary to restore the internal capabilities of the transportation agency; to support emergency responders and emergency management agencies; and to ensure the safety and protection of the transportation system's users, personnel, contractors, and vendors. In COOP planning, whether the emergency is the result of natural or human-caused events, an all-hazards approach ensures that essential functions will continue.

WHAT IS A COOP PLAN?

Depending on the type of emergency, continuity of operations can be essential in emergency response planning. However, because not all emergencies have COOP requirements, a separate COOP plan is developed. This plan is only activated under specific circumstances that disrupt the *internal operation* of the transportation agency through loss of facilities, system, equipment, vehicles, or personnel. COOP planning is a separate, but important component of emergency response planning.

COOP planning typically ensures that action will be taken immediately after an emergency disrupts internal transportation operations. This action will create an organization and capability that can be expected to begin performing essential functions within 12 hours of the emergency. This temporary COOP organization may continue to provide essential functions for up to 30 days after the emergency or until normal operations resume. Although the period could be slightly extended, the COOP organization is designed to be temporary. Beyond 30 days, it is assumed that the agency will have re-established a more formal structure for managing its operations.

The temporary COOP organization will perform *only* those functions identified and prioritized as essential during COOP planning. In most cases, these essential functions will be performed to meet minimum legal, public safety, operational and maintenance, and public information requirements. By identifying and prioritizing essential functions, transporta-

tion agencies can develop plans to manage activities to support personnel, contractors, customers, emergency responders, and the general public in the immediate aftermath of an emergency.

Throughout the COOP emergency, an element of the temporary COOP organization will be devoted to service planning and attempting to bring on line additional functions and capabilities as resources, personnel, systems, vehicles, and facilities become available.

To ensure that essential functions can be performed, COOP planning encourages transportation personnel to consider the use of alternate facilities (if access is denied to primary facilities or systems). Examples include secondary sites where DOTs, TMCs, or public transportation agencies can perform essential transportation monitoring and dispatch functions; maintenance facilities that can store, fuel, and maintain vehicles assigned to other garages or districts; and secondary administrative sites equipped to store and manage personnel, financial, and emergency operating records.

In transportation, COOP planning also encourages the availability and use of alternate procedures, often called temporary work procedures, to perform essential functions. Examples include

- Using transportation and law enforcement personnel to direct traffic if power outages affect traffic signals;
- Running automated train control systems in manual mode;
- Using pre-assigned routes for bus operators with no radio check-ins;
- Using public and community facilities to manage pedestrian overflow to clear roadways and bridges; and
- Using manual record-keeping processes to administer emergency operations and financial activities.

COOP planning also is concerned with ensuring continuity of leadership authority in transportation agencies. Therefore, elements of COOP planning emphasize the delegation of emergency authority and the development of orders of succession based on job titles to ensure that an agency can still make decisions, even when confronting the loss of senior management or technical personnel or both.

In addition, COOP planning encourages training and supporting procedures to ensure that a roster of trained and equipped personnel is available in an emergency requiring continuity capability. These personnel are organized in teams to create a temporary management structure that enables the agency to focus exclusively on the performance of essential functions. Training provides personnel with a clear understanding of essential functions and the specific activities performed to sustain them.

Procedures developed to support COOP planning will ensure that personnel understand

- How they will be notified regarding implementation of the COOP plan;

- Their designation as members of COOP teams under emergency conditions;
- How the agency will communicate with all designations of personnel during a COOP emergency;
- How to report for work at alternate facilities or locations;
- What to expect as far as payment, benefits, shift scheduling, and personal leave or vacations during COOP emergencies; and
- How the COOP organization will transition to normal operations.

Depending on the emergency, personnel who do not support the essential functions identified in the COOP plan may be instructed to remain at their residences. Personnel not required to report immediately could be on call or on standby status. Depending on agency policy and work rules, those personnel not on call or standby status are often placed on paid administrative leave unless otherwise notified.

Finally, COOP planning addresses activities that will be performed by the transportation agency to support local responders, other transportation agencies, and local and regional emergency management agencies if elements of the transportation agency's capability to provide service are disrupted. In this manner, the transportation agency can use the COOP plan to communicate with its local and regional partners to establish a mutual understanding of assumptions and capabilities under these conditions.

A comprehensive COOP plan provides a framework that establishes operating procedures to sustain essential functions when normal procedures are not possible and provides a guide for restoring normal agency operations and building functions. COOP planning ensures that the transportation agency can

- Provide alternative modes of operation under conditions of uncertainty,
- Protect and restore vital systems and equipment,
- Identify and resolve hardware and software requirements,
- Establish interoperable communications,
- Prepare in advance an alternate facility or work site so that the COOP can be activated,
- Provide primary and alternate facility occupancy and resumption plans,
- Address internal reporting requirements, and
- Make agreements with other transportation and response agencies.

HOW TO USE THESE GUIDELINES

These guidelines explain how transportation agencies can assign the COOP planning process to a COOP team managed by a designated COOP leader. Once the COOP leader and team have been established, these guidelines provide worksheets to be completed for each step in the COOP planning

process. Worksheets are provided as a separate section at the end of the Guidelines.

Completion of the worksheets will ensure that the COOP team assembles all materials necessary for the COOP plan. Throughout the guidelines, examples, tips, and recommendations are provided. Because transportation and transit agencies differ considerably in many areas, agencies are not expected to complete all worksheets fully. Agencies should, however consider the information areas represented in those worksheets in COOP planning discussions.

A complete set of worksheets is available in Microsoft® Word at <http://www.trb.org/SecurityPubs/>. A sample COOP plan template, cross-referenced to the worksheets, is also available at <http://www.trb.org/SecurityPubs/>. The transportation agency can use the worksheets and template to generate its COOP plan. Some transportation agencies may find it helpful to read the COOP plan template first, then read the guidelines and complete the worksheets, and finally return to the COOP plan template to tailor it for their operations. Other agencies may choose first to read the guidelines, then to complete the worksheets, and then, finally, to review and tailor the template to create their COOP plan.

Outreach materials are also available, as is a COOP planning resource library at <http://www.trb.org/SecurityPubs/>.

As the transportation agency COOP team and leader work through these guidelines, worksheets, and template, they will answer the following questions:

- Has a COOP leader and COOP team been designated?
- Have all key elements of the agency been involved in the planning process?
- Have the agency's essential functions been clearly identified?
- Is the delegation of authority outlined sufficiently to ensure continuance of agency operations?
- Is there a clear and documented order of succession for key management positions and appropriate authority for key officials, so that there is adequate command and control in an emergency?

- Have all the personnel named as successors or as holders of emergency responsibilities been briefed or trained on their responsibilities? Is contingency staffing available to perform essential functions?
- Is there sufficient capability to conduct procurement actions, keep financial records, record time and attendance, and perform other essential administrative support functions?
- Is there a vital records program?
- Is there a plan for protecting and recovering vital systems and equipment?
- Have alternate work sites been identified?
- Are there sufficient resources at alternate work sites to ensure that essential functions can be performed? If not, have arrangements been made to obtain the necessary resources?
- Does the relocation plan provide for security, transportation, food, and lodging of all personnel who may need to operate out of that facility?
- Does the plan ensure support for personnel and their families in the event of an emergency?
- Is there a detailed communication plan that (1) identifies preventive controls for communications equipment and alternate modes of communication, (2) addresses interoperability issues as necessary, and (3) lays out a chain of communication?
- Is there sufficiently detailed information in the plan to ensure that the plan can be implemented (e.g., phone numbers, addresses, names, locations, and equipment)?
- Is there a program for training agency personnel on COOP plan implementation?
- Is there a program to test the plan with exercises or drills?
- Is there a schedule of regular review and revision of the COOP plan, with sign off from authority level management?

Each question should be carefully addressed in order to develop an effective COOP plan.

CHAPTER 2

EXISTING GUIDELINES FOR COOP PLANNING

Since the late 1990s, the continuity capabilities of state and local transportation agencies within the United States have evolved far more rapidly than at any time since the continuity planning field was first established in the 1970s. Many observers attributed this advance, initially, to concerns over the effects of Year 2000 (Y2K) programming issues on the capability to sustain operations.

The Y2K planning initiative was both preceded and followed by a series of devastating hurricanes and floods that brought into question state and local transportation agencies' capabilities to manage major emergencies that denied access to facilities, utilities, and equipment. Finally, the attacks of September 11 and the subsequently heightened threat environment have encouraged continuity planning not only for contingencies that deny access to facilities, equipment, systems, and vehicles, but also to personnel. Threats from weapons of mass destruction (WMD) have also raised new concerns regarding long-term contamination of facilities.

In preparation for Y2K and in response to a changing threat environment, the Federal Emergency Management Agency (FEMA) issued *Federal Preparedness Circular 65, Subject: Federal Executive Branch Continuity of Operations (COOP)* on July 26, 1999. Then, *Federal Preparedness Circular 66, Subject: Test, Training and Exercise (TT&E) Program for Continuity of Operations* was issued on April 30, 2001. Also on April 30, 2001, FEMA released *Federal Preparedness Circular 67, Subject: Acquisition of Alternate Facilities for Continuity of Operations*. These circulars documented the results of federal continuity planning strategies and lessons learned through Y2K planning and other emergencies.

UPDATED FEDERAL GUIDANCE

Based on the experiences resulting from the terrorist attacks of September 11, 2001, and subsequent drills and exercises, FEMA revised its COOP circulars, publishing *Continuity of Operations Federal Preparedness Circular 65* or FPC 65 on June 15, 2004. This document supersedes the earlier guidance and consolidates requirements for COOP planning, alternate facilities, training, testing, and exercising into a single circular. This document also integrates COOP planning with other preparedness guidance developed by FEMA in its new role as part of the Department of Home-

land Security (DHS). The updated FPC 65 is available at: http://www.fema.gov/pdf/library/fpc65_0604.pdf or http://www.fema.gov/txt/library/fpc65_0604.txt.

In response to earlier recommendations from the Government Accountability Office (GAO) (formerly the General Accounting Office) and the National Emergency Management Association (NEMA), the revised FPC 65 offers additional details and examples to support COOP planning activities. It also introduces new requirements for personnel preparedness, risk assessments for alternate facilities, and lists of specific COOP elements to be reviewed and updated annually.

FPC 65 requires COOP planning for all federal agencies. In addition, approximately one-half of the states have developed COOP planning requirements based, to varying degrees, on FPC 65. Several major metropolitan areas have also established COOP planning programs. In many cases, state and local COOP programs are tied to grant programs administered by DHS/FEMA.

FEMA's COOP guidance is also referenced in the National Response Plan (December 2004) and the National Incident Management System (March 1, 2004). Both of these documents, which are important elements of the DHS emergency preparedness program, are expected to play a major role in shaping both DHS and FEMA grant programs for the next few years.

COOP OBJECTIVES

FPC 65 defines COOP planning as an effort to ensure that the capability exists to continue essential agency functions across a wide range of possible emergencies. As specified in FPC 65 Section 8,

the objectives of a viable COOP plan include:

- a. Ensuring the performance of an agency's essential functions/operations during a COOP emergency;
- b. Reducing loss of life, minimizing damage and losses;
- c. Executing successful succession to office with accompanying authorities in the event a disruption renders agency leadership unable, unavailable, or incapable of assuming and performing their authorities and responsibilities of office;

- d. Reducing or mitigating disruptions to operations;
- e. Ensuring that agencies have alternate facilities from which to continue to perform their essential functions during a COOP event;
- f. Protecting essential facilities, equipment, vital records, and other assets;
- g. Achieving a timely and orderly recovery from an emergency and reconstitution of normal operations that allows resumption of essential functions for both internal and external clients; and
- h. Ensuring and validating COOP readiness through a dynamic, integrated test, training, and exercise program to support the implementation of COOP plans.

COOP PLAN CONTENTS

FPC 65 requires federal agencies to develop COOP plans that address 10 planning topics:

- **COOP Planning Topic 1:** Essential functions are identified and prioritized to provide the basis for COOP planning.
- **COOP Planning Topic 2:** Plans and procedures are developed and documented to provide for continued performance of essential functions.
- **COOP Planning Topic 3:** Delegations of emergency authority identify the legal basis for the officials to make decisions in emergencies and the circumstances under which authorities begin and end.
- **COOP Planning Topic 4:** Orders of succession identify alternates to fill key positions in an emergency, to a sufficient depth to address the absence or incapacity of multiple levels of key personnel.
- **COOP Planning Topic 5:** Alternate facilities are identified to support essential operations in a secure environment for up to 30 days (including sufficient secure space; logistical support; consideration for the health, safety, security, and emotional well being of relocated personnel; and adequate communications and technology systems).
- **COOP Planning Topic 6:** Interoperable communications provide voice and data communications with others inside and outside the organization, including such communications from an alternate facility.
- **COOP Planning Topic 7:** Vital records are identified and made readily available in an emergency, including access from alternate facilities, and including steps to protect the security and integrity of emergency operations records, legal records, and financial records.
- **COOP Planning Topic 8:** Preparedness of personnel to implement the COOP plan is assured, including procedures involving closure, relocation, notification of personnel, designation into teams, media relations, and the

appropriate staffing and pay flexibilities, benefits issues, and employee roles and responsibilities.

- **COOP Planning Topic 9:** Tests, training, and exercises are designed to occur regularly to demonstrate and improve agencies' COOP capabilities, including testing of equipment and plans, exercises for personnel, adequate evaluation of the testing, exercise and creation of improvement plans.
- **COOP Planning Topic 10:** An all-hazards approach is undertaken to address the potential devolution of authority and operations, as well as an approach for reconstitution of essential services at a new site, should an emergency result in permanent loss of a facility.

PLANNING REQUIREMENTS FOR VIABLE COOP CAPABILITY

In providing greater specificity regarding COOP planning requirements, FPC 65 Section 9 now requires federal agencies to demonstrate viable COOP capabilities that at a minimum:

- a. Must be capable of implementation both with and without warning;
- b. Must be operational within a minimal acceptable period of disruption for essential functions, but in all cases within 12 hours of COOP activation;
- c. Must be capable of maintaining sustained operations until normal business activities can be reconstituted, which may be up to 30 days;
- d. Must include regularly scheduled testing, training, and exercising of agency personnel, equipment, systems, processes, and procedures used to support the agency during a COOP emergency;
- e. Must provide for a regular risk analysis of current alternate operating facility(ies);
- f. Must locate alternate operating facilities in areas where the ability to initiate, maintain, and terminate continuity operations is maximized;
- g. Should consider locating alternate operating facilities in areas where power, telecommunications, and internet grids would be distinct from those of the primary;
- h. Should take maximum advantage of existing agency field infrastructures and give consideration to other options, such as telecommuting locations, work-at-home, virtual offices, and joint or shared facilities;
- i. Must consider the distance of alternate operating facilities from the primary facility and from the threat of any other facilities/locations (e.g., nuclear power plants or areas subject to frequent natural disasters); and
- j. Must include the development, maintenance, and annual review of agency COOP capabilities using a multi-year strategy and program management plan. The multi-year

strategy and program management plan will outline the process the agency will follow to:

- (1) Designate and review essential functions and resources,
- (2) Define short- and long-term COOP goals and objectives,
- (3) Forecast COOP budgetary requirements,
- (4) Identify COOP program issues, concerns, potential obstacles, and the strategy for addressing these, as appropriate, and
- (5) Establish COOP planning, training, and exercise activities and milestones for these activities.

TIME-PHASING

FPC 65 also recognizes time-phasing, a feature embraced as a primary COOP planning tool by state and local public agencies. Time-phasing enables agencies to identify and list key activities, which are performed during distinct periods of time triggered by activation of the COOP plan. In many instances, time-phasing produces checklists that can be used by agencies to support COOP implementation. As discussed in FPC 65 Section 11, COOP time-phasing covers three phases: activation and relocation, alternate operating facility operations, and reconstitution. These phases are described below.

Activation and Relocation

This phase typically occurs 0 to 12 hours after COOP Plan Activation and includes

- Use of a decision matrix for implementing the COOP plan, in response to emergencies both with warning and without warning during duty hours and non-duty hours;
- Notification of COOP team personnel required to perform essential functions immediately and long-term;
- Notification of appropriate authorities, alternate facilities, and other specified points of contact;
- Movement to the alternate operating facilities;
- Directions and maps of routes from the primary location to alternate operating facilities;
- Movement of records, not pre-positioned, from the primary to the alternate operating facilities); and
- Ordering of necessary equipment/supplies not already in place.

Alternate Facility/Work Site Operations

This phase typically occurs 12 hours to 30 days after COOP Plan Activation and includes

- Reception and in-processing of COOP personnel;
- Transition of responsibilities to the deployed COOP personnel;
- Guidance for COOP team personnel whose responsibilities will commence after the initial response phase activities;
- Identification of replacement personnel and augmentees, as necessary;
- Execution of all essential functions at the alternate operating facility(ies);
- Notification of appropriate emergency management authorities that the COOP plan has been activated and relocation is required, so that those authorities can make other appropriate contacts; and
- The development of redeployment plans to phase down alternate facility operations and return operations, personnel, records, and equipment to the primary operating facility, when appropriate.

Reconstitution

This phase typically consists of Termination and Return to Normal Operations and includes

- Informing all personnel, including non-deployed personnel, that the need for the COOP plan no longer exists and providing instructions for resumption of normal operations;
- An orderly return to the normal operating facility, or movement to other temporary or permanent facility(ies) using a phased approach if conditions necessitate; and the transition of responsibilities from deployed COOP personnel; notification of the status of the relocation to appropriate emergency management authorities; and;
- An after-action review of COOP operations and effectiveness of plans and procedures as soon as possible, identifying areas for correction and developing a remedial action plan.

Using time-phasing, agencies can map activities for each phase to the chronology of events following a disruption of operations. Based on this listing, state and local agencies can prepare checklists, job aids, employee outreach materials, and operating procedures to support COOP implementation. This approach focuses and organizes activities required to restore essential functions.

Table 1 presents actions that might be taken in each of the three phases.

TABLE 1 Time-phased implementation

Phase	Time Frame	Activity
Phase I- Activation and Relocation	0-12 Hours	• Notify alternate facility manager of impending activation and relocation requirements. • Notify impacted local, regional and state agencies. • Activate plans to transfer to alternate facility. • Instruct advance team to ready alternate facility. • Notify agency employees and contractors regarding activation of COOP plan and their status. • Assemble documents/equipment required for essential functions at alternate facility. • Order needed equipment/supplies. • Transport documents and designated communications. • Secure original facility. • Continue essential functions at regular facility, if available, until alternate facility is ready. • Advise alternate facility on status. • Where are the operations and support teams? • Activate advance, operations, and support teams as necessary.
Phase II- Alternate Facility/Work Site Operations	12 Hours to Termination of Emergency	• Provide guidance to contingency team personnel and information to the public. • Identify replacements for missing personnel (delegation of authority and orders of succession). • Commence full execution of operations supporting essential functions at the alternate facility.
Phase III- Reconstitution	Termination of Emergency	• Inform all personnel that the threat no longer exists. • Supervise return to normal operating facility. • Conduct a review of COOP plan execution and effectiveness.

CHAPTER 3

INITIATING THE COOP PROCESS (TASK 1)

In the transportation environment, as for many other public agencies, the COOP planning process typically contains eight tasks:

- Task 1: Initiating the COOP Process;
- Task 2: Capabilities Survey;
- Task 3: Identifying Essential Functions;
- Task 4: COOP Plan Development, Review, and Approval;
- Task 5: Development of Supporting Procedures;
- Task 6: Training Personnel;
- Task 7: Testing the Plan; and
- Task 8: Updating the Plan.

The remainder of these guidelines discusses the activities to be performed by transportation agencies in each of these eight tasks. This chapter discusses the activities necessary to establish the COOP planning process and ensure development, review, and approval of an appropriate COOP plan (Task 1). Chapter 4 discusses capabilities surveys for transportation agencies (Task 2). Chapter 5 provides guidance on the identification of essential functions (Task 3). Chapter 6 supports the development of the remaining sections in the COOP plan (Task 4). Chapter 7 provides information on developing supporting COOP plan procedures (Task 5). Finally, Chapter 8 discusses training for, testing, and updating the COOP plan (Tasks 6, 7, and 8).

IMPORTANCE OF TOP MANAGEMENT SUPPORT

As transportation agencies move through these eight tasks, it is important to remember that responsibility for COOP planning belongs not to a single unit, department, or division of a transportation agency, but ultimately to executive leadership. In fulfilling this responsibility, the executive director or general manager can initiate the COOP planning process by

- Appointing an agency COOP leader and team;
- Allocating sufficient personnel and resources to develop, implement, and validate the COOP plan;

- Coordinating intra-agency COOP planning efforts and initiatives with policies, plans, and activities related to infrastructure protection and preventive measures;
- Training agency staff;
- Participating in periodic interagency COOP exercises to ensure effective interagency coordination and mutual support; and
- Notifying local, regional, and state agencies upon execution of COOP plans.

The executive director or general manager probably will delegate these tasks. Executive leadership should monitor COOP team efforts and coordinate between senior agency management and the team responsible for COOP planning.

Experience has shown that COOP planning requires executive management support in order to be successful. The transportation chief executive sets the tone by authorizing planning to take place and directing senior management to get involved. Developing the COOP program is a dynamic process; planning, although important, is not the only component. Other important functions are implementation and validation.

Detailed knowledge of emergency management is not required. What is required is the authority to create the plan, visibility within the agency, and commitment from management to ensure active participation at all levels. Because the COOP plan establishes the operational framework for an effective alternate operations capability for the entire agency, the COOP plan will require considerable effort in the development phase and continued diligence to maintain the program.

DEVELOPING THE COOP PLAN

In the transportation environment, developing the COOP plan can include

- Establishing the COOP team;
- An initial COOP meeting;
- Assigning authority;
- Milestones, schedule, and financial planning; and
- Preparing for challenges.

Each of these activities is discussed below.

Establishing a COOP Team

Using a COOP team

- Encourages participation by getting a range of transportation employees from different departments within the agency,
- Enhances team member performance,
- Enhances the visibility and stature of the planning process,
- Provides additional resources to support development and support review and approval of the COOP plan, and
- Provides for a broader perspective.

The COOP team is most effective if it represents different organizational units and disparate functional areas within the transportation or transit agency; however, it is advisable to have one individual in charge of the planning process. This individual serves as the COOP leader and has overall responsibility for developing and coordinating the COOP plan. It is also understood that, during activation of the COOP plan, this individual would play a significant role. Worksheet 1 is a template that the transportation agency can use to document its selection of the COOP leader. References that can help transportation agencies in selecting a COOP team leader are available at <http://www.trb.org/SecurityPubs/>.

The department or division leading the formal COOP planning effort probably will vary across state DOTs, TMCs, and public transportation agencies and may include risk management, emergency services, safety office, office of the executive director, office of maintenance and engineering, bridge division, transportation operations, and/or administration. The size of the COOP team will depend on the agency's operations, requirements, and resources. For smaller agencies, the COOP planning process may be managed by a team of two or three people. For larger agencies, the working team may include as many as 10 people, representing the departments with a role in COOP implementation and validation. Worksheet 2 is a template for documenting the members of the COOP team.

COOP team personnel can be selected on the basis of their knowledge and skills, including not only knowledge of the transportation system and its functioning, but also special skills that personnel bring to the job or exercise outside of their work lives. Those familiar with command structure, such as former military personnel or those involved in a volunteer capacity with fire, police, or emergency services, can be particularly helpful. Personnel can serve as team members or perhaps as reviewers of work as it is completed.

Ideally, the COOP team should include personnel who can be active members and those who will serve as advisors. In most cases, one or two people will do most of the actual documentation in a smaller agency, or within a specific area of responsibility in larger transit and transportation agencies.

Rotation of membership on the COOP team may also be considered, with former active members serving in an advisory

capacity. The team is responsible not just for initial planning, but for implementation, and the required plan update, maintenance, exercise, and improvement that will keep the COOP plan and personnel current.

As indicated in Worksheet 2, each member of the COOP team may be appointed in writing by management. It is important to include members from all functional areas—operations, maintenance, planning, engineering and construction, human resources, safety, security, public information, information technology/telecommunications, finance and administration, labor union(s), public affairs, and legal.

Finally, depending on the size of the transportation agency, it may prove worthwhile to establish subcommittees based on the following essential COOP elements:

- Plans and procedures,
- Essential functions,
- Alternate facilities,
- Communications,
- Vital records and databases,
- Logistics and administration,
- Personnel, and
- Training and exercises.

Such subcommittees may facilitate organizing activities and coordinating deliverables.

Initial COOP Meeting

An initial meeting of the COOP team works best if it is held shortly after the team members are selected for the COOP team. During this meeting, key agenda issues can be discussed, including the organization of the COOP team. Worksheet 3 is a template for an agenda of this meeting. The COOP leader can work with the senior management to establish the exact agenda and procedure.

Assigning Authority

Senior management demonstrates its commitment to the COOP program by authorizing the team to take all the steps necessary to develop, implement, and validate the plan and capability. The COOP leader is most effective when it is someone who has sufficient stature and visibility within the agency to ensure the COOP team is effective. Clear lines of authority are established, but provisions can be made to allow flexibility in coordination and free flow of information from all levels.

The COOP team can focus its work by choosing a mission statement to demonstrate its commitment. The statement would normally include the team's purpose, indicate organizational involvement at all levels, and define the team's authority. Worksheet 4 is a template for such a mission statement.

Milestones, Schedule, and Financial Planning

Based on the mission statement, the COOP team, in coordination with senior management, also establishes project objectives, project deliverables, and a project schedule, which includes performance milestones. Timelines can be modified as priorities become more clearly defined during the process. Typically, in the transportation environment, development of the COOP plan takes between 6 months and 1 year. Worksheets 5 and 6 are for use in documenting this activity.

Additionally, a system for reporting on the progress of the COOP planning initiative can be established. This process will ensure that senior management is kept informed of the planning process and can support the resolution of any issues that emerge between or across departments. Worksheet 7 is a template for documenting this commitment.

Once the team has established its mission statement, objectives, milestones, schedule, and reporting process, an initial budget can be prepared and approved by senior management. The budget can include such things as research, printing, seminars/workshops/meetings, consulting services, and other expenses that may be necessary during the preparation phase. Worksheet 8 can be used to identify costs.

Preparing for Challenges

To reduce the effect of the inevitable problems that arise during planning, the COOP team is advised to prepare for challenges. The use of program management techniques is recommended. Transportation agencies are advised to

- Establish specific goals and milestones,
- Prepare lists of tasks to be performed,
- Assign responsibility for each task,
- Select schedules for task completion, and
- Determine how to address problem areas and resource shortfalls.

In carrying out these activities, the COOP team may encounter resistance from within the agency. Possible responses and approaches to COOP planning objections and resistance are as follows:

- **The COOP plan will never be required.** Describe the changing threat paradigm and the probability of low-

impact emergencies and explain their effect on the agency's ability to fulfill its mission. Also, reference recent requirements and grant opportunities from the U.S. DHS (and subordinate agencies, such as the Office for Domestic Preparedness, the Transportation Security Administration (TSA), and FEMA). The regulatory environment surrounding transportation security and emergency preparedness makes it wise to address potential requirements in advance.

- **COOP plans duplicate plans already in place.** Examine the scope of existing plans. If necessary, explain that the focus of the COOP plan is on the transportation agency itself. The COOP plan does not specify what to do in an emergency, but instead focuses on how to restore internal operating capabilities within 12 hours and how to sustain critical services for 30 days. In addition, although emergency response plans may address some COOP elements, they do not specify essential functions or ensure that, no matter what the disruption, the transportation agency will be able to provide services. Finally, many of the elements required for communication with transportation personnel under COOP conditions are simply not addressed in other transportation plans or activities.
 - **COOP plans need to address only significant emergencies.** Explain the overall disruption over time caused by more probable emergencies. For example, fires and flooding cause far more damage than other more dramatic emergencies, such as workplace violence, terrorism, or even some types of natural disasters. If possible, draw on a historical example, an emergency that affected the local area or another area in the state, and demonstrate the benefits of COOP planning in managing that emergency.
 - **Why allocate resources to COOP planning?** Document the costs in terms of finances, community effect, reputation, and long-term consequences for failing to prepare. Transportation agencies actively work to serve customers regardless of the circumstances. Citizens have the right to expect their transportation systems will take reasonable measures to continue vital services at reasonable costs. Also, grants or other funds may be available to offset these costs. Make note of these funds to demonstrate the diligence of the agency in addressing emergency preparedness requirements in the most cost-effective manner possible.
-

CHAPTER 4

CAPABILITIES SURVEY (TASK 2)

Because much of the COOP planning effort will be spent building on existing processes within the agency, the team must begin its activity with a clear understanding of

- The agency's vulnerability to emergencies that could disrupt internal operations, and
- How the agency currently would manage a major internal disruption.

Before beginning specific elements of the COOP planning process, the team can review the results of previously conducted threat and vulnerability assessments to determine potential hazards and analyze the agency's current capabilities to manage those hazards. This activity is called a Capabilities Survey. In some agencies or in the business community, it might also be called a vulnerability assessment or risk analysis.

In this activity, the team can also review internal plans and policies, including any applicable guidance or regulations. The team may also identify codes and regulations with effect on agency activities, as well as existing agreements to provide support to other agencies or emergency responders.

The capabilities survey will enable the agency to better determine what resources will be required to continue its operations. This step will also serve as an assessment of the overall readiness of the agency to handle any emergency situation regardless of whether or not it requires COOP activation. To complete this activity, the COOP team is advised to

- Analyze capabilities,
- Inventory resources,
- Examine personnel assignments,
- Determine vulnerabilities,
- Review internal plans and policies, and
- Evaluate lines of coordination.

To complete this activity, the COOP team will require access to documents, assessments, plans and procedures, training materials, and other internal materials that describe the agency's existing processes and procedures for managing internal disruptions. Worksheet 9 is a template team members can use to request documentation. Worksheet 10 is a template

the team can use to identify vulnerabilities and capabilities and to provide an overall assessment regarding the level of disruption that may be experienced by the agency.

In completing these worksheets, the COOP team is advised to first enter emergencies that could result in disruptions sufficient to trigger the COOP plan. As indicated in the templates, these emergencies are categorized as: Natural Disasters, Security and Terrorism Emergencies, Loss of Utilities and Services, Equipment or System Failure, Information Security Emergencies, and Other Emergencies.

Agencies would be wise to complete separate capabilities surveys based on each of the above categories. Once potential emergencies have been identified, they can be assessed using a normative scale for their probability and effects. Then, the existing capabilities of the transportation agency to manage the potential emergency, were it to occur, can be identified.

Finally, the overall disruption potential can be determined, by assessing the probability and effect of the emergency against the transportation agency's capability to manage it. Based on this activity, the transportation agency will be able to distinguish specific types of emergencies as "Priority," "High," "Medium," "Low" or "Very Low."

EVENTS REQUIRING ACTIVATION OF THE COOP PLAN

Various circumstances may trigger full or partial COOP plan activation. In a recent survey conducted for this project in the fall of 2004, state DOTs, TMCs, and transit agencies identified the following emergencies as most likely to result in a situation that would require COOP capabilities:

- Fire (41%);
- Snow/ice storm (41%);
- Power failure (40%);
- Building/facility failure (38%);
- Flooding (37%);
- Terrorist event (35%); and
- Interoperable communications failure (31%).

Survey results from state DOTs, TMCs, and transit agencies are presented in Figures 1, 2, and 3, respectively. Although

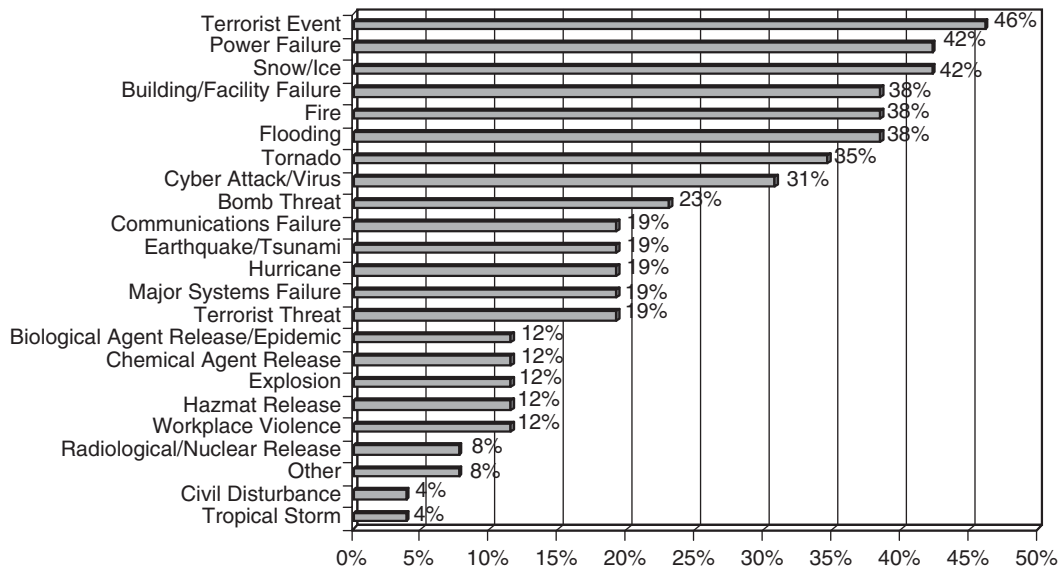


Figure 1. State DOT emergencies most likely to require COOP activation.

these results show similarities among the types of emergencies about which all transportation agencies are concerned, they also highlight distinct differences in the types of emergencies selected by state DOTs, TMCs, and public transportation agencies as most significant:

- State DOTs are most concerned about terrorist attacks, power failures, and snow or ice storms.
- TMCs are most concerned with facilities, communications and power failures, and snow or ice storms.

- Transit agencies are most concerned with fires, flooding, and power failures.

SUMMARY

The team's completion of the capabilities survey will result in documentation of current capabilities. This documentation can be used to help assess the threats to the essential functions the agency chooses to focus on during emergencies that might require COOP activation.

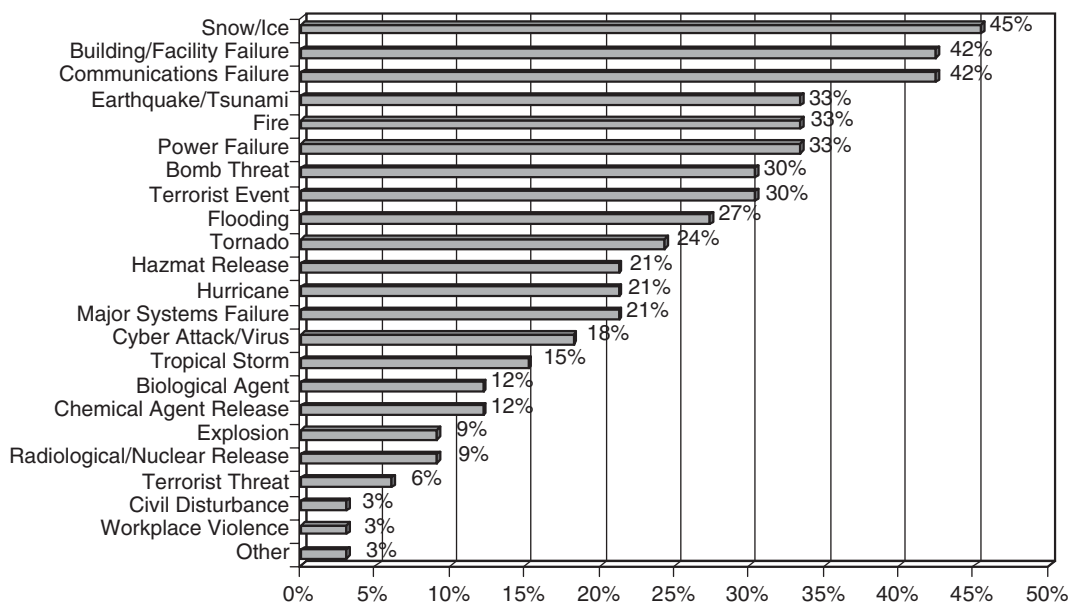


Figure 2. TMC emergencies most likely to require COOP activation.

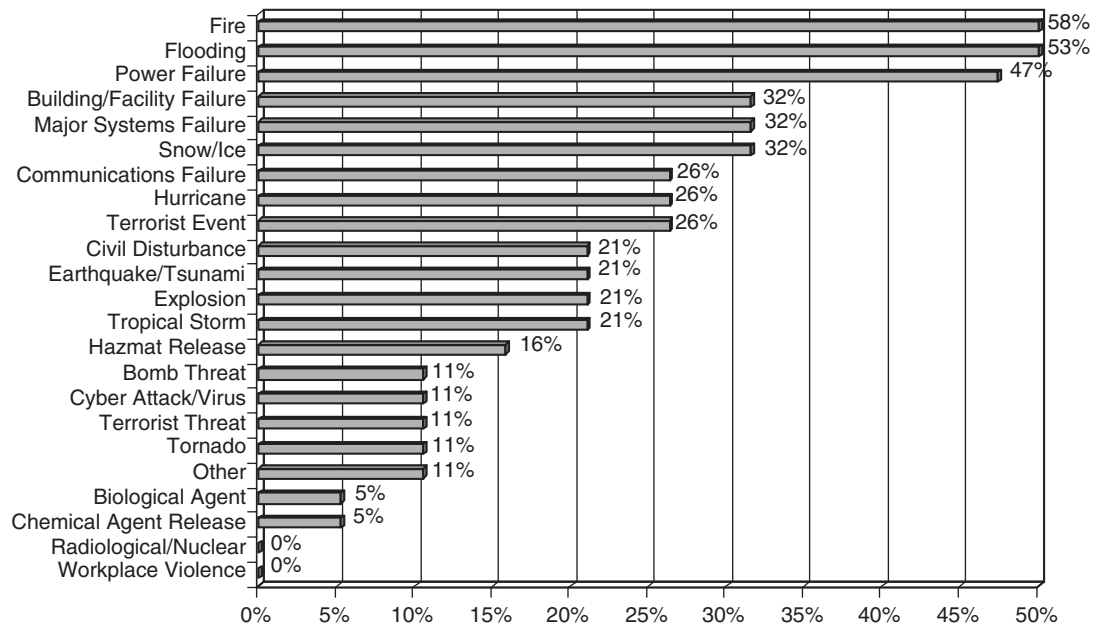


Figure 3. Transit agency events most likely to require COOP activation.

CHAPTER 5

IDENTIFYING ESSENTIAL FUNCTIONS (TASK 3)

After designating and establishing the COOP team, outlining the process for review of records and documents and setting milestones, and performing the capabilities survey, the next step is identifying the transportation agency's essential functions. Essential functions encompass those areas that the agency wishes to continue even in the event of an emergency. Any functions not deemed essential can be deferred until additional personnel and resources become available.

Identifying essential functions is difficult for agencies because personnel may presume that any function that is not selected is not necessary. This presumption is false. The COOP team can address any misconceptions about this from the beginning of its activities. COOP team meetings with agency divisions, departments, and units can rapidly dispel concerns regarding the nature of essential functions and any erroneous implications that may be drawn regarding their significance.

Identifying an agency's essential functions requires an intimate understanding of all the agency's operations. Although many functions are important, not every activity the agency performs is an essential function that the agency will need to sustain in an emergency or be sufficiently prepared to sustain in an emergency. The following are steps used for the selection of essential functions:

- Identify areas of responsibility;
- Compile organizational functions;
- Determine criteria for selecting essential functions;
- Identify essential functions;
- Identify supporting processes and systems for each essential function;
- Identify key management, technical, and supporting personnel; and
- Prioritize essential functions.

Each of these steps is discussed below.

STEP 1: IDENTIFY AREAS OF RESPONSIBILITY

Use Worksheet 11, a sample form, to complete this task, if needed. An agency may wish to use existing outlines for this step, within each division or unit of the agency. Identifying areas of responsibility helps the COOP team clarify the general types of activities that are performed, managed, contracted, enforced, overseen, or funded by the transportation

agency. To identify these responsibilities, it is important to begin with the transportation agency's mission statement. Other guiding statements to be reviewed may include the transportation agency's vision, values, goals, and strategies. Figure 4 is a sample of such a statement from a DOT.

The agency's organization chart is another important source of information, which captures the functional units, division, or departments used by the transportation agency. Figure 5, a sample organization chart, is also from a state DOT.

By the conclusion of this task, the COOP team will have identified a list of responsibilities. A sample list, for a state DOT, is as follows:

- Transportation development;
- Planning;
- Freight mobility;
- Transportation data;
- Research;
- Roads
 - State highway system,
 - Federal-aid highway system,
 - Strategic highway network,
 - Bridges and seismic lifeline routes,
 - Safety corridors,
 - Safety rest areas,
 - Border crossings,
 - Intelligent transportation systems;
- Motor carriers
 - Tax and fee programs,
 - Registration and permitting programs,
 - Safety inspection and regulation enforcement programs,
 - Over-dimension operations;
- Driver and motor vehicle services
 - Driver licensing programs,
 - Legal and law enforcement support programs;
- Railroads
 - Rail freight traffic,
 - Rail passenger traffic,
 - Supplemental service to trains,
 - High-speed rail corridor;
- Airports
 - State-owned airports,
 - Airports belonging to the National Plan of Integrated Airport Systems (NPIAS);

- Public Transit
 - Transit Districts,
 - Rideshare Programs,
 - Commercial Public Transportation Providers;
- Maritime pilotage
 - Pilotage grounds,
 - Waterways and marine transportation; and
- Central services
 - Legal,
 - Financial,
 - Civil rights,
 - Human resources,
 - Information services,
 - Internal audits,
 - Budgeting, and
 - Payroll.

A sample list, for a transit agency, is as follows:

- Engineering and construction
 - Planning and design,
 - Project administration,
 - Construction,
 - Quality assurance;
- Vehicle acquisition
 - Vehicle engineering,
 - Vehicle procurement;
- Finance and administration
 - Risk management,
 - Financial services,
 - Grants analysis and administration,
 - Procurements and contracts,
 - Internal audits,
 - Budgeting,
 - Payroll;
- Marketing and customer services
 - Planning and analysis,
 - Customer outreach,
 - Public information;
- Government affairs
 - Strategic planning,
 - Service planning,
 - Legislative affairs,
 - Communications;
- Intelligent transportation systems
 - Passenger information,
 - Internal operations;
- Facilities maintenance
 - Facilities inspection and repair,
 - Telecommunications inspection and repair;
- Bus transportation
 - Bus control center,
 - Operations,
 - Maintenance,
 - Labor relations;

- Rail transportation
 - Rail control center,
 - Operations,
 - Maintenance,
 - Labor relations;
- Training
 - Operations,
 - Maintenance,
 - Safety;
- Safety
 - Planning and operations,
 - Investigations,
 - Internal audits;
- Security
 - Planning and operations,
 - Investigations,
 - Internal audits;
- Legal services
 - General counsel,
 - Real estate,
 - Contracts,
 - Civil rights;
- Information technology
 - User support,
 - Program support,
 - Database records and management,
 - Security,
 - Disaster recovery;
- Human resources
 - Organizational development, and
 - Employee relations.

STEP 2: COMPILE ORGANIZATIONAL FUNCTIONS

Use Worksheet 12 to complete this step. The team may consider an initial examination of whether that function might be essential and consult the list in further work.

In this step, the COOP team defines the functions that are to be performed to meet the agency's operational requirements and legal obligations in each area of responsibility. In preparing this list, the results of the capability survey can be useful, indicating priority concerns and areas where the transportation system can be vulnerable to disruption. Beyond consulting current personnel, former agency personnel, if available, are excellent sources of information in interviews or brainstorming sessions. The COOP team is also encouraged to review

- The agency's enabling legislation and the regulations promulgated by the agency,
- Existing standard operating procedures (SOPS),
- Departmental handbooks, and
- Annual reports on agency operations.

Vision: The Department of Transportation was established to provide a safe, efficient transportation system that supports economic opportunity and livable communities for residents. DOT develops programs related to the state's system of highways, roads, and bridges; railways; public transportation services; transportation safety programs; driver and vehicle licensing; and motor carrier regulation.

Mission Statement: To provide a safe, efficient transportation system that supports economic opportunity and livable communities for all citizens of the state.

Our Values: These are the values that guide our decision making and which we follow in implementing DOT's mission and goals.

- **Safety:** We protect the safety of the traveling public, our personnel and the workers who build, operate and maintain our transportation system.
- **Customer Focus:** We learn from and respond to our customers so we can better deliver quality, affordable services to residents and visitors. Our customers include travelers, freight movers, and others who use our services and facilities.
- **Efficiency:** We strive to gain maximum value from the resources entrusted to us for the benefit of our customers.
- **Accountability:** We build the trust of customers, stakeholders and the public by reporting regularly on what we are doing and how we are using the resources entrusted to us.
- **Problem Solving:** We work with the appropriate customers, stakeholders and partners to find efficient, effective and innovative solutions to problems.
- **Positive Workplace:** We recognize innovation and initiative, we show respect for all, and we honor diversity.
- **Environment:** We provide services and facilities in ways that protect and enhance the environment.

Our Goals:

- Improve safety.
- Move people and goods efficiently.
- Improve the state's livability and economic prosperity.

Our Strategies:

- Provide outstanding customer service.
- Use innovative program design and technologies to solve transportation problems.
- Improve the return on investment of our transportation funds.
- Attract, retain and develop an outstanding DOT workforce.
- Engage the public, other state agencies, local governments, business and community leaders in solving transportation problems and planning for the future.
- Increase intermodal linkages to improve access for people and goods.
- Communicate, educate and inform the public about transportation issues.

Figure 4. Sample DOT vision, mission statement, values, goals, and strategies.

These materials typically offer a good starting point for identifying various agency functions and their corresponding areas of responsibility. Reviewing lists of daily activities, communications logs, and staff rosters can also support identification of functions.

The following list provides a sample of major functions that may fall under some or all areas of responsibility for a state DOT. Some of these functions are also applicable to a transit agency:

- Transportation planning and policy;
- Research;
- Grants management;
- Transportation data, modeling, and simulation;
- Geographic information systems and mapping;
- Engineering;
- Construction management;
- Contracts administration;
- Maintenance;
- Inspection and repair;
- Traffic control;
- Incident management;
- Intelligent transportation systems;
- Enforcing compliance with federal regulations;
- Enforcing compliance with state regulations;
- Administering tax, fee, and levy programs and collecting funds;
- Licensing vehicle operators and commercial carriers;

- Supporting law enforcement by providing information on licenses and commercial carriers;
- Issuing permits for restricted vehicles and carriers;
- Supporting military movement of goods;
- Inspections and safety regulations;
- Hazardous materials spills clean-up and oversight;
- Administrative services;
- Financial services;
- Information technology services;
- Legal;
- Human resources;
- Civil rights;
- Internal audits;
- Coordinating with local agencies;
- Coordinating with other state agencies; and
- Coordinating with the federal government.

STEP 3: DETERMINE CRITERIA FOR SELECTING ESSENTIAL FUNCTIONS

Use Worksheet 13 to complete this step. You may also wish to use Worksheet 14 to guide the discussion and documentation effort.

Once the COOP team has identified the functions performed for each area of responsibility, then it begins selecting essential functions for its COOP plan. Essential functions can be determined based on criteria that reflect the highest effect to the transportation/transit agency.

Establishing criteria to govern the selection of essential functions is a challenging task. Typically, the COOP team begins this activity by reviewing the transportation agency's emergency plans and procedures. A DOT or TMC might perform the following emergency activities:

- Notification;
- Direction and control;
- Warning;
- Communications;
- Emergency public information;
- Incident management;
- Resource management;
- Hazardous materials clean-up program;
- Financial management;
- Chemical stockpile emergency preparedness program;
- Emergency contracts administration;
- Transportation support to other jurisdictions;
- Coordination with local, state, and federal agencies;
- Recovery plans;
- Traffic control;
- Public information;
 - Traffic control devices,
 - Variable message signs,
 - Highway advisory radio,
 - Amber alerts,
 - 511 traveler information;

- Debris clearance;
- Emergency bridge and tunnel inspections;
- Clean-up oversight for hazardous materials spills;
- Technical assistance for geological hazards;
- Emergency repairs;
- Damage assessment;
- Transportation support (including analysis for alternate routes);
- Public works and engineering support; and
- Coordination with other agencies (support to local, tribal, and other state agencies; coordination with federal agencies).

A transit agency might perform the following emergency activities:

- Notification;
- Direction and control;
- Warning;
- Communications;
- Emergency public information;
- Incident response;
- Resource management;
- Financial management;
- Emergency contracts administration;
- Transportation support to other jurisdictions;
- Coordination with local, state, and federal agencies;
- Recovery plans;
- Reporting the emergency;
- Evaluating the emergency;
- Notification of internal and external responders;
- Closing or limiting service to the affected area;
- Initiating or joining incident command system or unified command;
- Evacuation of passengers and personnel to safety;
- Providing medical treatment and transportation to appropriate locations;
- Protecting personnel and equipment;
- Dispatching emergency equipment and supervisors;
- Emergency inspections;
- Providing emergency briefings and updated situation assessments;
- Performing damage assessments and emergency repairs;
- Transportation support and systemwide management;
- Public works and engineering support;
- Coordination with other agencies; and
- Temporary service plans.

Based on a review of these activities, a transportation agency may establish criteria to govern the selection of essential functions. For example, does the identified function support activities to

- Ensure the safety of personnel and passengers and protection of property;

- Establish a management capability sufficient to direct implementation of the coop plan;
- Restore internal communications and information technology capabilities;
- Obtain current information on the status of the transportation network;
- Establish reliable communications with personnel and external partner agencies;
- Support the inspection, repair, and recovery of the transportation system;
- Support emergency responders in managing the aftermath of the emergency;
- Develop temporary service plans; and
- Perform basic personnel management activities, including the protection of all records and the management of payroll.

lists essential functions that might be performed by a DOT following a major emergency that disrupts access to facilities, equipment, vehicles, systems, or personnel.

Common errors in the assessment of essential functions include

- Overlooking functions as being insignificant;
- Not considering in the identification process those tools and resources required to complete functions;
- Grouping functions too broadly to detail the support structure required effectively;
- Describing functions in such detail that it takes multiple pages to document simple functions;
- Including an unreasonable amount of detail, which slows down the process and restricts flexibility; and
- Using the function identification process by someone for ulterior purposes such as demonstrating how much their work unit does.

STEP 4: IDENTIFY ESSENTIAL FUNCTIONS

Use Worksheet 14 to complete this step. Refer to Worksheet 12 to test those functions identified as essential. When assessing the results documented in Worksheet 12 against the criteria established in Worksheet 13, the COOP team is ready to identify essential functions. Using this process, Table 2

Based on the results of Worksheets 12 and 14, the transportation agency can be expected to have good documentation of the essential functions that it wishes to be (and can be) performed during an emergency that disrupts internal operations. However, at this point, the list of essential functions remains tentative. The list has yet to be prioritized.

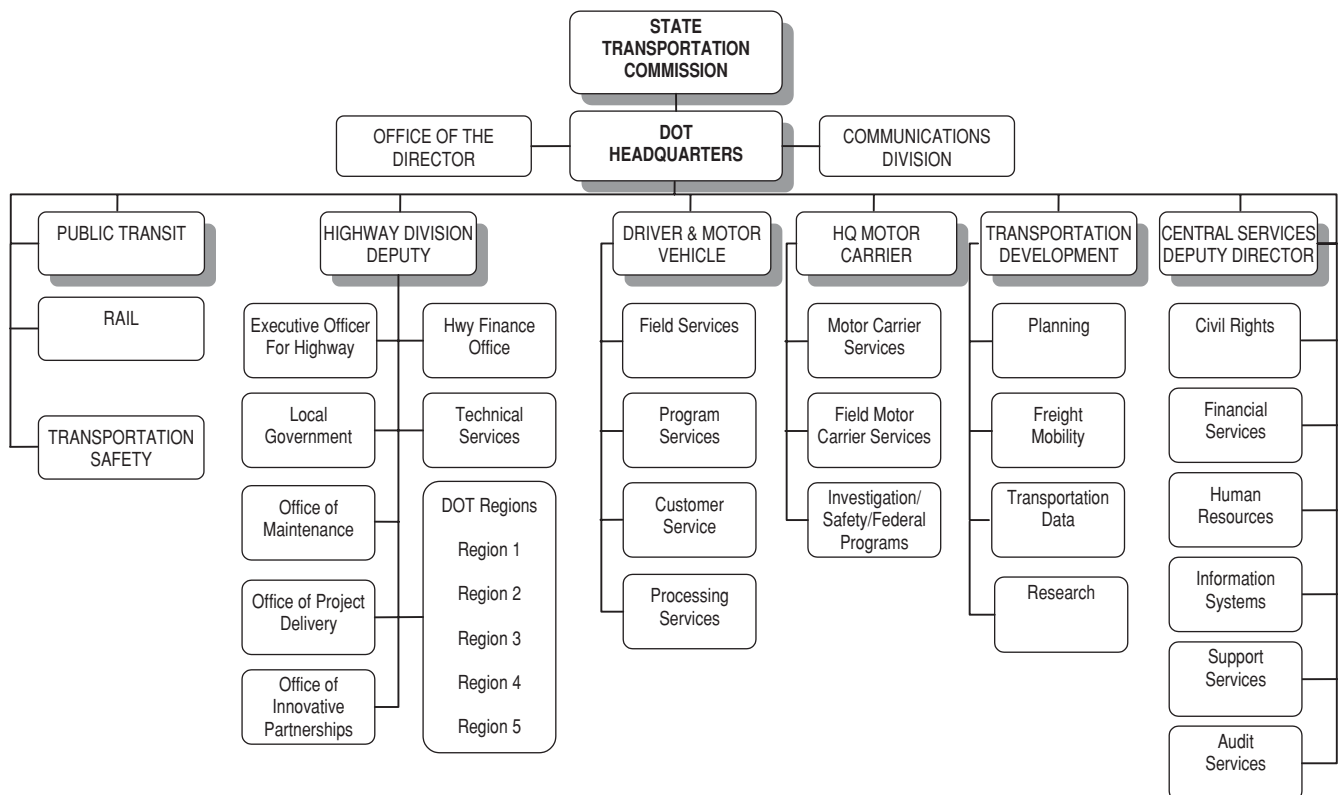


Figure 5. State DOT organization chart.

TABLE 2 Essential functions—sample for state DOT

Highway Maintenance	
	Perform emergency maintenance of state highways and, if appropriate, help local road authorities with emergency maintenance
	Remove snow and ice from state highways to keep roads open
	Provide traffic services, including traffic control and traffic monitoring
	Maintain bridges
	Provide construction engineering support for emergency highway reports
	Operate DOT facilities that are needed to support highway maintenance activity
Railroads	
	Monitor safety at rail crossings
	Monitor rail operations
Aviation	
	Maintain state airports
Support Services	
	Contract with vendors for emergency supplies, services, and other public works emergency needs
	Make emergency signs
	Issue forms and supplies needed by DOT emergency responders
	Transport needed equipment and supplies to DOT emergency responders throughout the state
	Provide field mechanics to make on-site emergency repairs to DOT equipment located in the field
	Make emergency repairs to DOT equipment at designated shops
	Conduct safety inspections of DOT facilities and obtain contractor services if necessary to ensure safety
	Secure DOT buildings and facilities; provide maintenance of utilities at DOT buildings; and make immediate repairs to damaged buildings
	Ensure necessary mail gets to DOT personnel
	File originals of emergency agreements and contracts and Director's Office documents
	Use DOT's photography and video resources to document damage caused by the emergency
	Provide reproductions of highway/facility drawings
	Transfer DOT fuel and equipment as needed to support response activities
Information Systems	
	Control access to and maintain security of DOT's computer systems
	Maintain DOT's computer network and mainframe operations
	Maintain DOT's radio system
	Maintain telecommunications systems needed by DOT responders
	Maintain DOT's server operations
	Provide computer support for engineering and Geographic Information System functions to support emergency response
	Provide computer assistance and personal computer support to DOT personnel to support emergency response
Public Affairs	
	Provide emergency information to the public
Financial Information	
	Conduct basic fiscal operations
	Make vendor payments
	Collect Motor Carrier weight-mile taxes
Driver and Motor Vehicle Services	
	Provide driver and motor vehicle related information to law enforcement and emergency services personnel
	Resume driver suspensions/reinstatements, driver convictions/accidents, driver financial responsibility, and hearings
Motor Carriers	
	Issue permits for trucks hauling over-dimension loads to protect the traveling public from traffic hazards and to minimize damage to highways
	Conduct truck and driver safety inspections and weigh and check truck size and weight limit compliance
	Inspect trucks and drivers at the roadside and at carriers' terminals; manage police and sheriffs who inspect trucks and drivers at roadside
	Identify and record carrier and truck information and record and track tax and registration payments
	Operate the truck weigh station pre-clearance system that provides for automatic vehicle identification and weighing at highways speeds
Transportation Inventory and Mapping	
	Develop and provide maps and transportation system data to support emergency response actions and to brief decision makers

To achieve this objective, the list of essential functions must be further broken down to identify generally the processes and systems, vital records and databases, and personnel required to support each essential function. Based on this information, the transportation agency can determine which essential functions require the longest lead time to be set up, and which essential functions would be in place in order for other essential functions to Task 5 of this process, Development of Supporting Procedures, which is discussed in Chapter 7.

This information also supports subsequent activities to establish actual COOP activation team assignments, to adequately supply alternate operating facilities, to identify relevant temporary work procedures, and to establish vital records and databases.

STEP 5: IDENTIFY SUPPORTING PROCESSES AND SYSTEMS FOR EACH ESSENTIAL FUNCTION

Use Worksheet 15 to complete this step. Worksheet 15 requires the COOP team to examine the personnel, records, equipment/resources, and systems that support the tasks within each essential function. Each essential function has unique characteristics and resource requirements, without which the function could not be sustained. These supporting elements may vary depending upon the emergency or if they have a time or calendar component. For example, a blizzard would make snow removal a vital service, while a

hurricane would not. Similarly, snow removal is an important service in the winter, but not in the summer. In identifying these elements, the COOP team is advised to review the results of Worksheet 14 to ensure that time-critical or calendar-critical resources are identified. A sample listing of these requirements for emergency procurement services (a likely essential function for most agencies) appears in Table 3. Another example, for public information, appears in Table 4.

In completing Worksheet 15, for each essential function, transportation agencies are advised to consider the following:

- Interoperable communications;
- Procurement;
- Inventory and resource management systems;
- Access to electronic databases and servers;
- Maintenance systems and equipment;
- Vehicle tracking and monitoring systems;
- Public and traveler information systems;
- Train control and train protection systems;
- Signal operations and maintenance systems;
- Field devices;
- Badging and access control systems; and
- Fueling and lube systems.

Special services, such as those that support inspection, maintenance, damage assessment, road weather management, and emergency management can receive priority attention.

TABLE 3 Emergency procurement services requirements—sample

Process	Systems	Records	Equipment/Resources
Emergency Procurement Services	• Accounting system • Fund authorization system	• Financial records • Emergency vendor list • Procurement forms • Hazardous materials clean-up contractor list	• Financial software • Accounts payable resources (checks, record-keeping materials, etc.)

TABLE 4 Passengers and traveler information—sample

Process	Systems	Records	Equipment/Resources
Passenger and Traveler Notification Services	• Transportation Wide Area Network • Transportation Radio System • Highway Advisory Radio System • Control Center SCADA Systems • Manual Field Device Control Systems • Internet and Phone-based Traveler Information Systems	• Data Files and Codes • Terminals • Field Equipment Operations Manuals • Field Equipment Maintenance Records • Notification Lists (Motor Carriers, Passenger Groups, Hospitals and Disability Community)	• Traffic Control Devices • Highway Advisory Radio • Variable Message Signs • Public Address Annunciators • Closed Circuit Television Systems • Road and Weather Monitoring Field Devices

STEP 6: IDENTIFY KEY MANAGEMENT, TECHNICAL, AND SUPPORTING PERSONNEL

Use Worksheet 16 to complete this step. For each essential function, identify the personnel required to carry out the function and the number of personnel needed. This information will support the creation of the COOP teams necessary to activate and sustain the COOP plan.

Every employee is important to achieving the agency's mission; however, as is true for processes and services, each essential function has associated key personnel and positions that are vital to the continuity of agency operations. If these positions are left unstaffed, the agency will not be able to fulfill its essential functions. Therefore, the agency identifies and staffs certain positions. To address personnel staffing issues during COOP emergencies, the transportation agency can use Worksheet 16 to document the following for each essential function:

- Key management and technical positions required for each essential function,
- Classifications of supporting personnel to perform essential functions, and
- Number of supporting personnel needed.

This activity may require some transportation agencies, particularly public transit systems, to consider carefully the levels of service required to perform essential functions. For example, how many bus operators, supervisors, dispatchers, and maintenance personnel will be required? How many routes can be put into service relying entirely on manual modes of operation and limited or no communications capability?

A rule of thumb is that for each essential function, the transportation agency designates fewer personnel than usually perform this function as supporting COOP operations. For example, during the first few days of COOP implementation, bus operations at a medium-sized agency may be limited to one shift and the number of support personnel may be limited. These personnel may be designated to operate a limited number of routes and to support emergency responders. As the emergency situation is brought under control, additional personnel will be activated, and additional routes can be returned to service.

STEP 7: PRIORITIZE ESSENTIAL FUNCTIONS

Use Worksheet 17 to complete this step. Instead of using first day or first week, an agency may wish to use number of hours or number of days. Once all essential functions have been identified, prioritize the functions according to those activities that are vital to resuming operations. Prioritization requires determination of the following:

- Time criticality of each essential function,
- Sequence for recovery of essential functions and their key processes, and
- Personnel availability and mobilization to begin the essential function.

An essential function's time criticality is related to the amount of time that function can be suspended before it adversely affects the agency's core mission. In transportation, measures of time criticality and recovery sequence are often specified by whether an essential function is to be performed within the first day after an emergency or can be brought on line within the first week after an emergency.

The sequence of recovery also affects this assessment. Some key processes and systems that support other systems or activities would be re-established before the performance of those other activities. In another example, inspection, damage assessment, and emergency repair functions would be performed before returning elements of the transportation system to service.

Finally, the ability of the transportation agency to mobilize identified staff to perform essential functions is also considered. In some instances, advance teams can be quickly assembled and deployed to bring up computer systems and telecommunications systems in an alternate facility. Personnel can effectively begin work in the alternate location after this occurs. Based on careful review of the time-criticality, sequencing, and personnel mobilization requirements for each essential function, the transportation agency can prioritize its list. Table 5 lists the essential functions identified for a DOT, prioritized according to the activities that the DOT has said it would be required to perform within the first day or first week after the emergency.

TABLE 5 Prioritized essential functions for state DOT

Highway Maintenance	
FD	Perform emergency maintenance of state highways and, if appropriate, help local road authorities with emergency maintenance
FD	Remove snow and ice from state highways to keep roads open to the public
FD	Provide traffic services, including traffic control and traffic monitoring
FW	Maintain bridges
FW	Provide construction engineering support for emergency highway reports
FW	Operate DOT facilities that are needed to support highway maintenance activity
Railroads	
FD	Monitor safety at rail crossings
FD	Monitor rail operations
Aviation	
FW	Maintain state airports

TABLE 5 (Continued)

Support Services	
FD	Contract with vendors for emergency supplies, services, and other public works emergency needs
FD	Make emergency signs
FD	Issue forms and supplies needed by DOT emergency responders
FD	Transport needed equipment and supplies to DOT emergency responders throughout the state
FD	Provide field mechanics to make on-site emergency repairs to DOT equipment located in the field
FD	Make emergency repairs to DOT equipment at established repair shops
FD	Conduct safety inspections of DOT facilities and obtain contractor services if necessary to ensure safety
FD	Secure DOT buildings and facilities; provide maintenance of utilities at DOT buildings; and make immediate repairs to damaged buildings
FW	Ensure necessary mail gets to DOT personnel
FW	File originals of emergency agreements and contracts and Director's Office documents
FW	Use DOT's photography and video resources to document damage caused by the emergency
FW	Provide reproductions of highway/facility drawings
FW	Transfer DOT fuel and equipment as needed to support response activities
Information Systems	
FD	Control access to and maintain security of DOT's computer systems
FD	Maintain DOT's computer network and mainframe operations
FD	Maintain DOT's radio system
FW	Maintain telecommunications systems needed by DOT's responders
FW	Maintain DOT's server operations
FW	Provide computer support for engineering and Geographic Information System functions to support emergency response
FW	Provide computer assistance and personal computer support to DOT personnel to support emergency response
Public Affairs	
FD	Provide emergency information to the public
Financial Information	
FD	Conduct basic fiscal operations, manually if necessary
FD	Make vendor payments, manually if necessary
FW	Collect Motor Carrier weight-mile taxes
Driver and Motor Vehicle Services	
FD	Provide driver and motor vehicle related information to law enforcement and emergency services personnel
FW	Resume driver suspensions/reinstatements, driver convictions/accidents, driver financial responsibility, and hearings
Motor Carriers	
FD	Issue permits for trucks hauling over-dimension loads to protect the traveling public from traffic hazards and to minimize damage to highways
FW	Conduct truck and driver safety inspections and weigh and check truck size and weight limit compliance
FW	Inspect trucks and drivers at the roadside and at carriers' terminals; manage police and sheriffs who inspect trucks and drivers at roadside
FW	Identify and record carrier and truck information and record and track tax and registration payments
FW	Operate the truck weigh station pre-clearance system that provides for automatic vehicle identification and weighing at highways speeds
Transportation Inventory and Mapping	
FD	Develop and provide maps and transportation system data to support emergency response actions and to brief decision makers

Note: FD = first day; FW = first week

CHAPTER 6

COOP PLAN DEVELOPMENT, REVIEW, AND APPROVAL (TASK 4)

Once the capabilities survey is complete and essential functions have been chosen and prioritized, the COOP team can begin creating the COOP plan. The actual process for documenting the COOP plan may vary depending on organizational practices; however, the methodology is often similar across transportation agencies. At each major stage in the drafting process, it is important to seek constructive criticism and review.

Each agency is advised to

- Prepare the first draft;
- Coordinate review by each organizational unit on the first draft;
- Incorporate changes and develop a second draft;
- Seek external review by expert(s) and partners in local/regional/state emergency response and management on the second draft;
- Incorporate changes and develop the final draft;
- Present the final draft to the appropriate senior leadership for approval and signature;
- Finalize the plan;
- Print and distribute the plan; and
- Review and update the plan annually or as major changes occur.

Coordination of the plan with local responders is vital to the plan's success. Coordinating the plan with local responders also will reduce the duplication of efforts, provide a means for assigning scarce resources, and enhance the overall planning process. Finally, sharing the COOP plan with partners in local, regional, and state emergency response and management agencies will enhance their understanding of the transportation agency and the agency's ability to provide supporting services if an emergency disrupts internal transportation operations.

USING ESSENTIAL FUNCTIONS TO BUILD THE COOP PLAN

Essential functions are the basis for the plan the agency will create. Agencies following the process outlined in these guidelines will have begun looking at personnel, records, and resource needs as the prioritized essential functions were

determined. Such formal documentation of what the agency intends to do, when it intends to do it, where it intends to do it, and how it intends to do it is often called a Concept of Operations (CONOPS). The agency's CONOPS then consists of implementation of the plan first. Implementation means agreement that the plan will be followed. The actual activation of the plan, when it is put into operation, is also addressed here. The plan will identify activities for

- Ensuring leadership succession and assignment of authority;
- Assigning specific teams to perform essential functions;
- Identifying and preparing alternate facilities;
- Protecting vital records and databases and communication systems; and
- Maintaining the plan through training and testing, followed by evaluation and improvement planning.

This section describes major activities to be performed to

- Determine conditions necessitating the activation of the COOP plan;
- Determine hours of operation;
- Identify alternate work sites from which to perform COOP functions (if the primary facilities are destroyed or disrupted);
- Create COOP teams;
- Delegate emergency authorities and manage orders of succession;
- Identify and protect vital records; and
- Address interoperable communications requirements.

Each of these activities is discussed below.

ACTIVATING THE COOP PLAN

Whatever emergencies are anticipated, the agency can develop an executive decision process that allows for a review of the emergency situation and determination of the best course of action for response and recovery. Using a decision matrix for implementing the COOP plan, the agency will avoid premature or inappropriate COOP activation. This matrix will also enable the transportation/transit agency to

evaluate its situation using a rational process developed before the onset of the emergency and taking into account various considerations that may not be identified or identifiable in the emotionally charged environment surrounding the unfolding emergency.

Table 6, a sample decision matrix, presents potential disruptions resulting from emergencies classified in Emergency Levels 1 through 5. Using these emergency levels and examples, the agency executive director or general manager, or a duly designated successor, will activate or partially activate the COOP plan. The decision matrix focuses on how the emergency may affect the capabilities of the transportation agency to provide its essential functions. To remain flexible in the various situations that could trigger activation or partial activation of the COOP plan, this matrix provides general guidance. Recommended effects and decisions may be modified based on the actual emergencies. Agencies can create their own matrices based on this example.

HOURS OF OPERATION

In addition to developing a process for activating the COOP plan, the COOP team is advised to develop hours of operation. Hours of operation will let the public, emergency

responders, and transportation personnel and vendors know when essential functions will be performed, or when to expect certain activities necessary to bring additional functions on line.

Although some larger public transportation agencies and TMCs provide 24/7 coverage, most transportation agencies have pre-determined duty and non-duty hours. During a major emergency, even the largest public transportation agencies may not be able to sustain 24/7 operations. Therefore, the COOP team needs to establish reasonable operational hours for the COOP plan.

Depending on the essential functions provided, the availability of transportation personnel, vendors, and contractors, and the anticipated needs of emergency responders, the COOP team can select in advance a schedule that supports the local, regional, and/or state needs for essential functions. At the same time, the team must recognize the limitations of the transportation agency as a disrupted organization. Some agencies adopt existing holiday, weekend, or seasonal hours of operation; while others may add limited nighttime hours, or begin and end earlier in the day.

Some agencies may specify a preferred schedule and then revise it based on the conditions of the actual emergency experienced. Other agencies may select different hours of operations for different categories of essential functions.

TABLE 6 Sample decision matrix

Level of Emergency	Impact on Agency and COOP Decision
1	Impact: Disruption of up to 12 hours, with little effect on services or impact to essential functions or critical systems. Example: Major accident on highway or transit system. Decision: No COOP activation required.
2	Impact: Disruption of 12 to 72 hours, with minor impact on essential functions. Example: Computer virus, small fire or moderate flooding. Decision: Limited COOP activation, depending on transportation agency requirements.
3	Impact: Disruption to one or two essential functions or to a vital system for no more than three days. Example: Power outage, heightened Homeland Security Advisory System threat level. Decision: May require partial COOP activation to move certain personnel to an alternate facility or location in the primary facility for less than a week.
4	Impact: Disruption to one or two essential functions or to the entire agency with potential of lasting for more than three days but less than two weeks. Example: Snow/ice storm; hurricane, workplace violence, major telecommunications failure or major power outage. Decision: May require partial COOP plan activation. For example, orders of succession for some key personnel may be required; in addition, movement of some personnel to an alternate work site or location in the primary facility for more than a week may be necessary. Personnel not supporting essential functions may be instructed not to report to work, or be re-assigned to other activities.
5	Impact: Disruption to the entire agency with a potential for lasting at least two weeks. Example: Explosion in/contamination of primary facility; major fire or flooding; earthquake, tsunami. Decision: COOP plan activation. May require activation of orders of succession for some key personnel. May require movement of many, if not all, essential personnel to an alternate work site for more than two weeks. Personnel not supporting essential functions may be instructed not to report to work, or be re-assigned to other activities.

ALTERNATE FACILITIES

Another important element of a COOP plan is the designation of alternate facilities or work sites and a relocation strategy. In some emergency scenarios, activation and execution of a COOP plan may not necessitate relocation to an alternate facility, i.e., the agency will not be forced to abandon the primary work site. However, should leaving the primary work site be necessary, there is a three-step, time-phased process for relocation: (1) Alternate Facility Activation and Relocation; (2) Alternate Facility Operations; and (3) Reconstitution and COOP Termination:

- **Alternate Facility Activation and Relocation**—The first step occurs in the first 12 hours after a disruption to agency operations requiring abandonment of the primary facility. This step relies heavily upon communication, not only among the decision makers within the transportation agency, but also between the agency and its vendors, who may be providing services to support the move to temporary quarters, and the public, who may rely on the transportation system for evacuation, reuniting with children and loved ones, or to commute to emergency facilities. Communication also occurs with local, regional, and state emergency response and management agencies, and, of course, with transportation personnel.
- **Alternate Facility Operations**—The second step involves the conduct of operations in an alternate work site and lasts until senior leadership has declared an end to the emergency. Generally, operations in the alternate facility are limited to only the essential functions of the agency. All alternate facilities are expected to have the capability to sustain essential functions for up to 30 days or until normal operations can resume.
- **Reconstitution and COOP Termination**—The third step involves the return to regular agency facilities and resumption of normal agency operations. This step involves both the transition back to primary facilities and re-integration of all personnel back into normal operations.

Alternate facilities or work sites are typically defined as locations where the agency can carry out essential functions when the primary facilities are inaccessible or made unusable due to damage. Alternate facilities may be established for single facilities or functions. For example, vehicles normally maintained at one garage may be handled at another garage owned by the agency. Mailroom functions may be re-located to another floor or building owned by the agency.

If an emergency forces a work area or an entire building to be evacuated, key agency personnel can relocate to an alternate work site or facility, which allows the agency to carry out its essential functions and meet the needs of emergency response personnel. Because the need to relocate may

occur without warning, agencies are strongly advised to make every effort to pre-position, maintain, or provide for minimum essential equipment for continued operations of essential functions at the alternate operating facilities for a minimum of 30 days.

Transportation Experience

In identifying alternate facilities, transportation agencies often use the following:

- Facilities converted from an existing facility;
- Facilities leased from, borrowed from, or shared with another agency;
- Facilities newly built to serve as alternate facilities; and
- Other arrangements, including mobile command centers; use of existing field offices; partnerships with local, regional, or state agencies, or vendors and providers of disaster recovery services.

In previous research, members of the transportation community have expressed a range of opinions regarding the importance of alternate facilities. TMCs, which are perhaps the most dependent on equipment located in a single facility, typically express the greatest concern over the need for alternate locations and redundant systems to perform their functions. Some rail transit agencies, which have operating control centers to manage automatic train control systems, also often place a high priority on alternate facilities and redundant systems.

Over the past 5 years, most alternate facilities that have been newly built or renovated from existing field locations were designed for TMCs and rail transit agencies to address these concerns. These alternate facilities, with their supporting redundant communications and information technology systems, are expensive, ranging from \$200,000 to several million dollars, and are clearly beyond the financial capabilities of all but the largest agencies.

State DOTs and some larger bus-only transit agencies, whose operations tend to be located in multiple facilities in separate geographic areas, typically express less concern with the need for alternate facilities. For these agencies, in many cases, disruption of service at one facility can be managed by another facility. For example, many state DOTs and larger transit agencies have multiple garages and redundant communications systems, as well as vehicle fleets stored at multiple facilities and operations and maintenance personnel reporting to multiple facilities. Of major concern to these agencies, however, is the need for temporary work procedures, which ensure that personnel know where to report and how to perform their jobs under conditions of limited or no communications.

Alternate vehicle fleets are generally not available. Many agencies (e.g., rail transit and smaller bus transit agencies) store all vehicles in a single location. The concern is that it is

difficult to predict the effects that emergencies requiring COOP activation could have on these agencies. Some might have a significant part of the fleet out of the garage, and some might have a significant part of the fleet garaged at the time an emergency shuts off access. Some agencies may be able to rely on school buses and vehicles from other transit agencies or commercial motor coaches to help support emergency services needs.

Access to fuel supplies and existing parts inventories is another concern, though many agencies plan for supplies and inventories to cover between 1 and 2 weeks. How and where fuel pumps might be powered and accessed, relationships with alternate providers of fuel and parts, and the ability of emergency parts and supply providers to reach the alternate facility are also of concern. Although concern exists over the ability to fuel and maintain vehicle fleets following a major emergency, some transportation agencies can sustain some level of service for several days after a disruption in supply, provided they have fuel pump power. Some transportation agencies also have back-up power supplies, or emergency generators, and most have priority status to receive electricity once power is restored.

Many transportation agencies operate at least 16 hours a day; these agencies generally can be expected to have at least two shifts of trained and qualified management, maintenance, operating, and supervisory personnel on which to draw to provide service. Some agencies have indicated a belief that their agencies offer sufficient depth to survive the inaccessibility or loss of some management, operations, and/or maintenance personnel.

Some agencies believe that the distribution of their facilities and their staffing plans during normal operations limit their concern about the need for alternate facilities. All are mindful of the need for protection of technology systems required to support service: communications, train control and traffic management systems, and personnel management systems.

Personnel management systems are perceived as particularly important, because employee records, payroll, insurance, and other vital documents are often now highly automated and could be subject to interruption, loss, or corruption depending on the type of emergency experienced.

Whatever its size, service area, and operational requirement, transportation agencies typically require that the following factors be addressed in identifying and selecting alternate facilities and work sites:

- Immediate capability to perform essential functions under various threat conditions;
- Sufficient space and equipment to sustain the relocating agency;
- Ability to communicate with all identified important internal and external agencies, customers, and the public;
- Reliable logistical support, services, and infrastructure systems, including water, electrical power, heating and air conditioning, etc.;

- Ability to sustain essential functions for 30 days;
- Appropriate physical security and access controls; and
- Consideration for the health, safety, and emotional well-being of relocated personnel and customers, i.e., adequacy of wash rooms, parking, accessibility for those with disabilities, vending or food service availability, rest facilities, etc.

Categorization of Alternate Facilities

One system of categorization can be particularly helpful for transportation agencies, especially if financial resources are not available to create a fully functional alternate facility. Existing facilities can be identified as potential alternate work sites, so long as (1) the specific activities required to make it a fully functional location are identified and (2) a list of emergency vendors that could bring the facility on line are identified. Using this approach, alternate facilities can be classified as hot sites, warm sites, and cold sites.

- **Hot Site:** A hot site is an alternate facility that already has in place the computer, telecommunications, and environmental infrastructure necessary to perform the agency's essential functions.
- **Warm Site:** A warm site is an alternate work site equipped with some hardware and communications interfaces, as well as electrical and environmental conditioning that can provide backup after additional software or customization is performed and/or additional equipment is temporarily obtained. Data may or may not be duplicated and installed there.
- **Cold Site:** A cold site is an alternate facility that has in place the environmental infrastructure necessary to recover essential functions or information systems, but does not have pre-installed computer hardware, telecommunications equipment, etc. Arrangements for computer and telecommunications support would be made at the time of the move to the cold site.

Another option for an alternate work site is a pre-existing facility already in use by the agency. For instance, a tornado may destroy one of the agency spaces, but leave another building or work area untouched. Those agencies with multiple facilities may find it easier to move into buildings or work areas not damaged.

Often, because of fiscal constraints, operating and maintaining a separate, alternate work site is not within the means of a transportation agency. In this case, many agencies enter into cooperative or mutual aid agreements and use virtual office technologies. With a cooperative agreement, an agency can contract for use of another agency's facility in an emergency; or the arrangement can be less formal as in a mutual aid agreement:

- **Cooperative Agreement:** Any formal, legally binding contract between two or more parties where the parties agree to share an alternate facility.
- **Mutual Aid Agreement:** The pre-arranged sharing of services (human or material resources) when vital resources are not available to either party. Equipment, shelter, or personnel needs may be predetermined for a particular type of emergency or determined at the time of the request in consideration of available resources.

Several agencies may also opt to contract jointly with an outside vendor for use of an emergency facility. A word of caution is in order here. In making these agreements, it is highly desirable to assess whether the potential cooperative/mutual aid partner has similar agreements with other agencies in place and whether these might conflict with the agreement at hand. A large-scale disaster could affect many agencies that have contracted with each other or for use of the same space in an emergency.

To identify alternate facilities, the transportation agency can complete Worksheet 18. Using this worksheet, the COOP team can identify the work site needs of the agency by essential function.

To develop options for alternate facilities, use Worksheet 19. Current facilities owned or used by the agency are normally considered first as options for alternate work sites. These are good candidates for hot, warm, or at least cold sites. If an agency does not have suitable additional facilities or none of those are deemed appropriate as potential sites, the COOP team might consider entering into a mutual aid agreement with another agency to use their facilities or an agreement to share an alternate work site. Mutual aid agreements can be made for hot, warm, or cold sites.

The alternate facility may represent a series of locations based on the phase of the emergency and the number of personnel assigned to the location. During the very early stages of COOP activation, the alternate facility may support only a small number of the transportation agency's personnel. During the first few days of COOP activation, the alternate facility may support more of an agency's personnel. As the transportation agency brings more functions and services back on line, partial use of other facilities, temporary work orders, or sequences scheduling of activities may have to occur to accommodate more personnel, vehicles, and equipment. Whatever facilities are ultimately selected, they are expected to be capable of the flexibility for supporting operations in a standard 8-hour, 12-hour, or 24/7 environment based on the emergency and leadership decisions.

Finally, it is important for the transportation agency to develop a process for assessing whether the potential alternate work site may be susceptible to some risk, such as flooding or potential inaccessibility because of repairs or traffic control plans. If the potential alternate site is in an area that faces some elevated risk of physical damage, it may not be an ideal alternate work site.

The COOP team should consider the following questions when selecting alternate facilities and work sites:

- Did you select an area where the ability to initiate, maintain, and terminate operations will not be disrupted or affected by the same or similar event that the primary site experienced?
- Did you consider using existing field facilities, a virtual environment, or joint or shared space?
- What is your immediate capability to perform essential functions under various threat conditions (e.g., threats involving weapons of mass destruction)?
- Can the facility be operational within 12 hours after activation? Can you sustain operations for 30 days or longer?
- Did you perform a risk analysis of this alternate facility?
- Did you consider all possible scenarios for COOP relocation (e.g., fire, flooding, and potential threats of terrorism)?
- Did you consider the distance from the threat area of any other facilities/locations such as hazardous materials/areas susceptible to natural disasters or likely focuses of civil unrest?
- How many shifts and how many COOP team members per shift will be required to accomplish essential functions from the facility?
- What is the minimum amount of space these COOP team members need to accomplish their functions under emergency conditions?
- Do you have reliable logistical support, services, and infrastructure systems, including water, electric power, heating and air conditioning, etc.?
- Do you have access to important resources such as food, water, fuel, and medical facilities?
- If the alternate facility is located at a distance from the primary site, did you develop plans to address housing for emergency staff (billeting within facility or local motels)?
- How will you handle housekeeping requirements, including supplies?
- Have you thought about your transportation requirements to the facility for COOP team personnel?
- Does cellular phone coverage limit the facility from consideration?
- What are the equipment and furniture requirements for the facility?
- Have you determined the power requirements for the facility?
- Have you identified backup power to the facility?
- Have you identified your interoperable communications requirements?
- Is the alternate facility outside the communications and data grid of the primary facility?
- Do you have sufficient telecommunication lines and data lines?

- Do you need a secure phone or fax machine?
- Do you have a requirement for secure storage containers?
- What type of computers and software do you need?
- Do you need security personnel to provide perimeter access and internal security functions?

RELOCATION PLANNING

Identifying alternate work sites is of little use if there is no plan for relocating personnel and resources suddenly because of an emergency. Relocation planning focuses on several issues:

- Communications among agency management, agency personnel, emergency personnel, other agencies, agency customers, and the general public;
- Logistics; and
- Providing for the human needs of staff both at the primary, if operational, and alternate facilities.

If the agency has to move to an alternate facility, the needs of staff operating at the facility are to be met. This includes provision for logistical support and lodging through arrangement with vendors for transportation, hotels, catering, etc. In addition to the physical needs of agency personnel, the comprehensive COOP plan also addresses their emotional needs. Disasters, regardless of their origin, influence and affect the motivation and morale of personnel, which can affect their productivity. Furthermore, personnel will experience greater stress levels, even if the COOP plan is implemented flawlessly.

A COOP plan may include provisions for counseling and plan for readjustments of work assignments for those who are incapacitated by the emotional effect of a disaster such as a terrorist attack (e.g., death of a family member). These concerns can be tailored to the type and duration of the disruption. Use Worksheet 20 to address personnel requirements at the alternate facility.

Not only does the alternate work site need to be identified and the care of staff arranged, but also security and access to both the primary and the alternate facilities during emergency and non-emergency situations need to be arranged. The security procedures must be able to accommodate all hazards and include provisions for identifying access restrictions. Use Worksheet 21 to address these concerns for each alternate work site.

Finally, alternate facilities are selected for each primary facility and documented within the plan. Use Worksheet 22 to document those choices.

COOP ACTIVATION TEAMS

In the event of activation or partial activation of the COOP plan, designated COOP activation teams are to be established to manage and perform essential functions. To develop

COOP activation teams, the transportation agency can go back to the results identified in Worksheet 16, Management, Technical, and Supporting Personnel.

In this worksheet, completed for each essential function, the COOP team identified the key senior and technical management positions and the support personnel (by position and number required) necessary to perform each essential function. This information supports the creation of the COOP activation teams necessary to activate and sustain the COOP plan.

In the transportation environment, COOP teams can be identified as the following:

- The **Executive Team** can handle decision-making and direct activation or partial activation of the plan. Members of this team should not be tasked with work on the advance team or even be expected to be involved with early operations team activities. Some senior leadership personnel probably can assume some tasks such as media and inter-agency contacts, freeing advance, operations, support, and contingency teams to ensure that essential functions are carried out. Senior leadership can also be expected to be influential in obtaining assistance and removing unanticipated obstacles.
- The **Advance Team**, immediately after activation or partial activation of the COOP plan, will perform activities necessary to ready the system for the performance of essential functions. This may include restoring telecommunications and information technology systems capabilities; mobilizing resources; preparing deployment sites and/or alternate operating locations; and locating and protecting vital records, data sets, and databases.
- The **Operations Team** will lead the performance of essential functions, developing strategies and plans to ensure their continuation no later than 12 hours after the emergency. The operations team will coordinate with the advance team to synchronize operations and to successfully bring up services and systems using alternate locations, back-up systems, mobilized resources, temporary work procedures, and pre-determined or impromptu deployment sites.
- **Support Teams** will follow the direction of the operations team. Support teams are typically organized by functions and will focus their activities on the separate activities necessary to perform essential functions. The activities may include vehicle operations, maintenance crews, inspection and damage assessment teams, traffic control and direction, situation assessment and planning, public outreach, and support crews to emergency responders. There may be one or more support teams specified.
- **Contingency Teams** initially may not be needed. These personnel will report to their homes or other locations to wait for direction from the operations team or support teams. These personnel understand that they may be assigned to perform a range of functions necessary to

support the transportation agency, its users and customers, and emergency responders. As they are called upon to support the agency's return to normal operations, these personnel may be organized into one or more teams.

Each transportation agency will develop a different classification system for assigning personnel to these teams and for

communicating with them upon activation of the COOP plan. Table 7 describes this system.

Personnel assigned to contingency teams may think that they are being punished by the transportation agency or being told that their work is not important. It is advisable, from the beginning, to address this situation by explaining the limited nature of COOP operations. Functions must be brought on line in an organized and prioritized way. Individual functions

TABLE 7 Sample COOP team designations

Team	Team Members	Typical Responsibilities
Executive Team	Senior leadership not involved in specific activities to set up, conduct or directly support essential functions	• Activate or partially activate COOP plan activities • Coordinate inter-agency and media communications • Promote coordination among governmental/agency units
Advance Team	Personnel who support critical services, systems or resources necessary to perform prioritized essential functions	• Initiate notification regarding COOP plan activation (internal pager/beeper systems; call trees; in-person notification, etc.) • Notification of external agencies regarding COOP plan activation • Assignment to ready critical processes, systems, resources, and records necessary to support essential functions • Coordination with duly designated decision makers and the operations team coordinating the relocation of communications, information technology, and vital records, datasets and databases to the alternate facility or another location
Operations Team	Senior management and technical personnel from each organizational element within the agency with responsibility for essential functions	• Ensure safety and security of system users, personnel, contractors, and others who have come into contact with the system • Initiate essential functions from alternate facility or other location • Manage emergency public information requirements • Coordinate emergency procurements and contracts • Coordinate necessary activities to manage emergency and administration functions • Coordinate inspections, damage assessments, and emergency repairs • Perform situation assessments and obtain status of the transportation system • Communicate and coordinate with advance teams and support teams • Assess performance of essential functions • Communicate status with local responders • Develop plans for additional functions and gradual restoration of operations
Support Teams (Teams 1 through X)	Designated personnel from each element within the agency with responsibility for carrying out specific activities necessary to support essential functions	• Receive notification from advance team or operations team • Report to designated location (alternate facility, pre-determined location or other site) • Support the operations team as directed -- typical support teams may be organized into vehicle operators, maintenance crews, inspection and damage assessment teams, traffic control and direction, public outreach, and support crews to emergency responders • Provide other special needs as required.
Contingency Teams (Teams 1 through X)	Agency personnel with no designated responsibilities to support essential functions	• Report to default locations (home or other site) • Wait to be notified of assignment • Be prepared to perform a range of functions as directed by the operations or support teams

or jobs are all important; but some take a different priority under emergency conditions. Contingency team members may, in fact, be doing the most important work in an emergency, as they tackle the unexpected needs and requirements to help make others safe and secure.

Once the teams have been identified, based on the activation procedures developed for the COOP plan and the hours of operation, it is desirable that a roster of trained personnel to support COOP plan implementation be developed and maintained by the transportation agency. Worksheet 23 provides a sample.

DELEGATION OF EMERGENCY AUTHORITY

Transportation agencies confront emergency situations that result in the loss or unavailability of senior management and technical personnel. To address this possibility, the COOP team should assess requirements for delegation of emergency authority.

Delegation of emergency authority enables the agency to determine who has decision-making authority, access to areas, and management of essential functions. This will also help to ensure rapid response to any emergency situation requiring the implementation of the COOP plan. The transportation agency's legal counsel is normally consulted when determining delegations of authority.

In addressing this component of COOP planning, transportation agencies may wish to consider the following:

- Identification of the programs and administrative authorities needed for effective operations at all organizational levels having emergency responsibilities;
- Identification of the circumstances under which emergency authorities would be exercised;
- Clarification of the limits of authority and accountability under emergency conditions;
- Documentation of the authority of designated successors to exercise agency direction, including any exceptions, and the successor's authority to re-delegate functions and activities as appropriate;
- Clarification of circumstances under which delegated authorities would become effective and when they would terminate (usually, pre-determined delegations of authority would take effect when the normal authority is rendered unavailable and would terminate when normal authority is resumed); and
- Recognition of the need for training personnel who may be expected to assume authorities in an emergency.

Two categories of authority can be addressed in COOP delegation of authority: emergency authority and administrative authority.

Emergency Authority

Emergency authority refers to the ability to make decisions related to an emergency, such as deciding whether to activate a COOP plan, deciding whether to evacuate a building, or determining which personnel are to report for duty. In an emergency requiring COOP plan activation, COOP team members are often the natural choice for assuming emergency authority. However, COOP team members are not the only candidates for such authority.

In determining its policies for emergency delegation of authority, the transportation agency can review its pre-delegated authorities for making policy determinations and decisions at headquarters, field levels, and other organizational locations, as appropriate. When delegating emergency authority, an agency can consider delegating authority among the key personnel in such a way to ensure that each has an equitable share of the duly established leadership. An agency also should train officials on performance of their emergency duties.

Basic principles to consider when delegating emergency authority include the following:

- Identify which authorities may be delegated;
- Establish rules and procedures addressing conditions for succession and method of notification;
- Identify limitations of delegations;
- Identify to whom authorities may be delegated; and
- Train potential successors on their duties in an emergency.

Worksheet 24 may be completed by the COOP team to document the agency's policies and procedures for the delegation of emergency authority.

Worksheet 25 addresses the rules, procedures, and limitations that may be placed on delegations of emergency authorities by position. Vacancies in key positions can occur for various reasons, and many times, vacancies are the result of non-emergencies, such as illnesses, leaves of absence, and temporary assignments. Thus, the delegation of authority component of a COOP plan requires a list of conditions or events that will trigger the delegation of authority for that key position. Activation of any delegation of authority may be tied to the level of threat or category of emergency. Activation policies may also detail how the designee will assume authority and how agency staff will be notified of the delegation.

Administrative Authority

Administrative authority refers to the ability to make decisions that have effects beyond the duration of the emergency. Unlike emergency authority, administrative authority does not have a built-in expiration date. Such decisions involve policy determinations and include hiring and dismissal of personnel and allocation of monetary and non-monetary

resources. Statutory or constitutional law may limit the delegation of this kind of authority.

When delegating administrative authority, an agency also needs to examine laws and regulations governing the agency. Delegation of administrative authority is generally limited to upper management, but may be extended to middle management and non-management as necessary and allowed by law. Again, the transportation agency's legal counsel can provide advice on delegation of administrative authority.

ORDER OF SUCCESSION

Order of succession is defined as a formula that specifies who will automatically fill a position if it is vacated. Developing orders of succession for key positions is intertwined with determining delegation of authority in an emergency.

A comprehensive COOP plan will include an order of succession for each key position. Although orders of succession for key leadership and management positions within the agency, both at headquarters and in satellite facilities, are necessary for a comprehensive COOP plan, orders of succession are not limited solely to management positions. In fact, any essential function requires that there be sufficient succession plan contingencies to fill needs. Some of the personnel who are on contingency teams can be assigned, as appropriate, within the order of succession plan.

All agencies have non-management personnel who, because of their function in the agency, are critical to accomplishing the agency's goals. Ideally, identify key positions by the position title and not by the name of the person currently in the position, because different individuals may move through a single position, while positions tend to stay the same. Consequently, the orders of succession by key positions will need fewer revisions over time. Nevertheless, there may be a few individuals who have very specific knowledge, skills, and/or experience in the agency and they may have to be named specifically. If key personnel are identified by position title, materials should be revised to reflect any reorganization affecting those parts of the agency.

When identifying successors, the COOP team is advised to consider the organizational and geographic proximity of the potential successor to the key position. A potential successor who is part of the same department or division (organizational proximity) is a good choice, because they already have an understanding of the key position. However, ensure that there is at least one successor in the order of succession who is not located in the same office or facility in case the vacancy results from a catastrophic emergency in a particular geographic location.

Considerations for orders of succession planning include the following:

- Geographic proximity,
- Organizational proximity,

- Skills,
- Experience,
- Knowledge and training, and
- Personality.

Although the focus is on the measurable skills, experience, knowledge, and training necessary for holding a specific key position, personality traits such as an ability to work under pressure or communicate clearly in pressure situations may also be considered. An order of succession also requires sufficient depth. In other words, there may very well need to be more than one or two named successors in most circumstances.

To achieve the best results, all key positions are first identified. The authority to be delegated, identified in Worksheets 24 and 25, already gives some idea of which positions and personnel are key positions and personnel. However, there may be some key positions or personnel that have not been identified by looking solely at delegation of authority. Therefore, the COOP team can review the agency's current organizational structure, by position and function, i.e., executive director(s)/general manager, deputy director(s), vice president(s), chief operating officer(s), etc. After studying the agency's organization chart, the COOP team can examine the consequences resulting from a current or past vacancy, question current and former agency personnel, and examine historical evidence regarding needed orders of succession. When finished, the COOP team can document its results in Worksheet 26.

VITAL RECORDS AND DATABASES

A successful COOP plan provides for the protection, accessibility, and recovery of the agency's vital records, systems, and equipment. These are the records, systems, and equipment that if irretrievable, lost, or damaged will materially impair the agency's ability to conduct business and carry out essential functions.

Every agency has some type of maintenance program in place for the preservation and quality assurance of data and systems. Such a program takes into account the cost of protecting or reconstructing records weighed against the necessity of the information to achieving the agency mission. COOP planning takes advantage of the maintenance programs already in place and may improve upon them to achieve optimal readiness for disruptions to an agency's essential functions.

Vital Records

A successful COOP plan also provides for the identification, protection, and ready availability of electronic and hard-copy documents, references, records, and information systems needed to support essential functions under any type of

emergency. Agency personnel need to have access to and be able to use these records and systems in conducting their essential functions.

COOP planning for vital records includes assessing any vital records programs in place at the transportation agency and improving or developing a program to provide for the optimal protection, duplication, and preservation of records. This maintenance program, as well as procedures for the recovery and restoration of records, forms the basis of a vital records program. The vital records delineation should be broadly defined to also include safes and keys, for example, that secure vital records.

The key to identifying vital records is looking to the agency's essential functions and their supporting critical processes and services. In Worksheet 15, the COOP team identified the records needed to perform essential functions. With that worksheet, determine those records necessary for emergency operations and/or the recovery or the continuation of agency essential functions for up to 30 days and list them in Worksheet 27. Also indicate whether these records are time-critical, i.e., how soon after disruption are they expected to be needed. Time criticality is an essential component of the issue of secure, off-site storage, for example.

Identifying vital records is somewhat like identifying agency essential functions. The agency may perform many functions, but not all are essential. The same can be said about records; all may be important, but not all are essential. Only a small percentage of the agency records are vital, i.e., essential to emergency operations and to the agency's continuance or difficult or impossible to replace.

Vital records may be in any format or medium. Original records are not necessary. It is the information, not the medium that is most important. If the information is contained in a medium other than paper, the technology required to access the information and the availability of that technology in an emergency must be considered. For example, if the record is on microfilm only, the COOP plan can include provision of film readers in an emergency. To document vital records for COOP planning, complete Worksheet 27.

Because vital records are often part of vital systems and equipment, a single disaster recovery plan often addresses both records and systems/equipment. The information technology (IT) department is advised to have a disaster recovery plan in place for IT systems and equipment. Some agencies may find that any COOP planning requires close work with the IT department throughout the process.

If the accessibility of vital records is unlikely to be possible in emergencies involving, for instance, a regional blackout, it is desirable for the IT disaster recovery plan to include provision for regular, periodic, hardcopy printing of the data, or other alternative solutions.

Ideally, the COOP team should consult with IT staff for assistance in COOP planning for recovery of vital electronic records. Additionally, the IT disaster recovery plan should support essential agency functions. COOP teams also should

identify restoration and recovery resources for non-electronic records. Worksheet 28 addresses this process.

Systems and Equipment Supporting Essential Functions

A system or piece of equipment is vital if it is required to perform emergency operations and/or to the agency's continuance of critical processes and services during an emergency for a minimum of 30 days. COOP planning for vital systems and equipment proceeds in the same way as planning for vital records. The first step is to identify vital systems and equipment and the second step is to select and arrange protection methods for vital systems and equipment.

Many of the critical processes supporting essential agency functions include or consist entirely of IT systems and applications. IT is defined as systems and applications, generally computer-based, that assist in the collection, storage, analysis, and communication or transfer of data and information to other systems and/or individuals. For this reason, the IT component of any agency plays a vital role in COOP planning. The IT department is not ultimately responsible for developing COOP plans. COOP planning is the responsibility of the agency head and the designated COOP leader and COOP team, not of the agency's IT department. Representation from the IT department is necessary from the start on the COOP team, because IT department knowledge of system capabilities will be helpful in actual preparation of the plan. The IT department is a resource, a valued planning partner, and an important element in recovery planning.

INTEROPERABLE COMMUNICATIONS

Communications is a critical component of a successful transportation agency COOP capability. Interoperable communications systems support connectivity to internal agencies, other agencies, critical customers, and the public.

Goals for communications planning typically include the following:

- Capability commensurate with agency's essential functions and activities;
- Ability to communicate with the COOP team, management, and other agency components; and
- Ability to communicate with external agencies, emergency personnel, vendors, and the public.

When determining interoperable communications requirements for an emergency situation, transportation agencies are advised to consider services such as the following:

- Voice lines;
- Fax lines;
- Data lines;

- Cellular phones;
- Pagers;
- Email;
- Internet access;
- Instant messenger services;
- Personal digital assistants (PDAs);
- Radio communication systems;
- Satellite communication systems;
- Local, regional, state, and federal emergency telephone services; and
- Other means of communication used by the agency (e.g., in-person; specialized systems, etc.).

Interoperable communications planning for COOP capabilities typically involve three activities:

- Assessing those communications systems supporting each essential function,
- Identifying controls that could prevent interruption of primary communication channels, and
- Identifying alternative modes of communication in case the primary modes are not available.

Each of these activities is discussed below. Critical COOP activities, such as notification, situation assessment, and internal and external agency coordination during emergencies ALL require a communications infrastructure.

Assessing Communication Systems Supporting Essential Functions

As with previous tasks, the key to identifying interoperable communications systems is reviewing the critical processes and services that support the agency's essential functions. In most transportation agencies today, business is conducted primarily through telecommunications.

Telecommunications include digital, electronic, or automated systems used in transmitting messages between remote locations. Examples include telephone (both land lines and cellular), facsimile, cable, radio, television, email, and internet service. These telecommunications systems generally support an entire transportation agency and typically are not specific to a particular function or organizational unit.

To identify these systems, use Worksheet 29. In completing this worksheet, be sure to identify ALL systems that support communications, however antiquated or advanced.

Identifying Preventive Controls

Preventive controls attempt to avoid the occurrence of unwanted disruptions such as data loss through power outages and equipment malfunction and destruction. As with vital records, preventive controls are necessary in mitigating risks

to those communication systems that support essential functions, both at the primary and alternate work sites. Examples of preventive controls include the following:

- Tested uninterruptible power supplies to provide short-term backup power to system components;
- Air-conditioning systems with adequate excess capacity that, despite failure of certain components, allow continued functioning of the entire system;
- Fire and smoke detectors;
- Water sensors in the ceiling and floor for computer and telecommunications rooms;
- Gasoline- or diesel-powered generators to provide long-term backup power tested and checked to ensure fuel is not too old to be used;
- Fire suppression systems;
- Emergency master system shutdown switch;
- Technical security controls; and
- Regular training for personnel on how to operate all features and the manual overrides and necessary tools and locations of tools.

Ideally, an agency should assess those preventive controls that are best for each mode of communication and then compare those controls to the protective measures now in place at both the primary work site(s) and at any alternate work sites. To identify preventive controls, it is advisable that the agency complete Worksheet 30.

Identifying Alternative Modes of Communication

When preventive controls fail, it is advisable that an agency have alternative providers and/or modes of communication in place to fill the gap. This can be handled by having a separate emergency communication system set up or by using communications systems already in place. For example, cellular phones could be an alternative to land-based voice lines.

Some service providers offer special services for emergencies, such as telecommunications services priority (TSP). This service gives a transportation agency's telecommunications circuit priority, allowing communications to get through when all circuits are busy. Each transportation agency can check with its providers for information on any emergency communications services.

To document alternate modes of communication, the transportation agency can complete Worksheet 31. This worksheet provides space to list any available emergency services. Consider also providing radios, satellite phones or other special communication devices to COOP team members for use in an emergency. Consider, too, access to the Government Emergency Telecommunications Service (GETS) for priority voice and data transmission lines.

CHAPTER 7

DEVELOPMENT OF SUPPORTING PROCEDURES (TASK 5)

COOP PROCEDURES

To implement the COOP plan, it is desirable that the transportation agency consider developing specific procedures to direct activities. The transportation environment, like so many other businesses, is largely procedure-driven. Training and evaluation exercises (discussed in the next chapter) are supported and driven by the development of procedures. During an actual emergency, with the inherent stresses and strains on personnel, the ability to retrieve and review pre-established protocol can ensure that critical items are not overlooked and that disproportionate attention is not paid to trifling details.

Checklists and specific step-by-step processes should be created and tailored to the specific actions the agency already has discussed.

The following procedures and documents can be developed by the transportation agency to support COOP plan implementation:

- Capabilities survey methodology for alternate facilities,
- Damage assessment forms and methodology,
- COOP alert and notification checklist and procedures for essential functions,
- COOP activation checklists and procedures,
- Alternate site-support checklists and procedures,
- Resource Acquisition and Purchasing Standard Operating Procedure (SOP),
- Facility Evacuation Plan,
- Alternate Facility Evacuation/Security Plan,
- Assembly Site(s) and Deployment SOP,
- Plans to prepare families of personnel for activation,
- Protection and safeguarding procedures for vital records and databases,
- Contingency procedures for availability of vital records and databases,
- Order of Succession Implementation in Emergency Conditions SOP,
- Communication to Critical Customers SOP,
- Annual Review Procedure and Remedial Action Plan Template,
- Checklist of pre-positioned resources and drive-away kit standards,

- Executive COOP Team SOP,
- Advance COOP Team SOP,
- Operations COOP Team SOP,
- Support COOP Team SOP,
- Contingency COOP Team SOP,
- Alternate facility vulnerability assessment details,
- COOP team rostering and update procedures,
- Mobile Communications Support SOP,
- Human resources/payroll system procedures, and
- Media relations policies and procedures.

Formalizing temporary work procedures can be very useful. They establish applicable processes for coordinating activities with appropriate internal units and external agencies with the requisite resources available under emergency conditions. In many instances, the procedures may already exist as part of maintenance and emergency response plans and programs.

In summary, the COOP plan specifies what essential functions will be done according to prioritization and the supporting procedures documents specify who and how the actions will be accomplished. The goal of the procedures should always be to provide clarity for those who expect to be involved, and even more clarity for those who do not expect to be involved, but must be due to unforeseen circumstances.

COOP PERSONNEL PREPAREDNESS AND DRIVE-AWAY KITS

The last step in COOP planning is to develop a list of activities performed by the transportation agency to ensure the preparedness of personnel to activate the COOP plan and perform essential functions. In preparing this list, transportation agencies are advised to consider

- Designation of personnel for essential executive, advance, operations, support, and contingency teams;
- Dismissal or closure procedures;

- Prepared media announcements on transportation agency operating status;
- Status of non-emergency personnel and non-special categories of personnel;
- Sample agency guidelines for communicating with personnel during the emergency;
- Methods of agency-to-employee communications regarding activation;
- The content and location of drive-away kits, which contain items needed to minimally satisfy personal and professional needs during deployment;

- Referencing supporting procedures or lists that identify employee roles and responsibilities during COOP emergencies;
- Pay flexibilities;
- Staffing flexibilities; and
- Benefit issues.

Because most, if not all, of these personnel preparedness issues will be addressed in other agency documents, use Worksheet 32 to document where they can be found.

CHAPTER 8

TRAINING, TESTING, AND UPDATING (TASKS 6, 7, AND 8)

TRAINING PERSONNEL AND TESTING THE PLAN

If an agency is to have an effective COOP plan, agency personnel need to have more than a general awareness of COOP requirements. Each individual plays an important part in the agency's COOP readiness, and each division needs to know how to execute its portion of the COOP plan and how it relates to the COOP plan for the agency. In short, every person needs to "own" the process.

To achieve this, an agency needs to train all personnel on COOP plans and conduct COOP drills, where personnel will use a COOP plan in response to a mock emergency. COOP plans may be adaptable to various scenarios that range from partial or short-term relocations or loss of horizontal facilities (road and track) to complete disruptions of operations and movement of an entire agency's operations from vertical facilities (buildings). The COOP team also needs to test its plans, backup, and recovery systems regularly.

Agencies must stress the intended result of the training before personnel receive training. COOP training is always aimed at an individual's and an agency's ability to provide personal and public safety and conduct essential operations which emergency providers, other agencies and the public need, even in times of an agency's emergency.

Agencies need to

- Train all employees on COOP plans and the agency's needs for them;
- Train all employees on their potential roles in the process;
- Train all employees to the level of expertise and skill required;
- Test the plans, policies, and equipment for operationality and effectiveness;
- Drill personnel on tasks assigned; and
- Exercise decision-making skills and methodologies.

Agencies test and exercise plans, equipment, and personnel to demonstrate and improve their ability to execute the plan. Training familiarizes COOP team members with the essential functions that they may have to perform in an emergency. Tests and exercises help to validate and identify shortfalls in specific aspects of the COOP plan, policies, procedures, systems, and facilities used in response to an emergency situa-

tion. Periodic testing also ensures that equipment and procedures are maintained in a constant state of readiness. Furthermore, testing helps agency personnel understand what will happen once an evacuation of their normal operating facilities occurs and what steps will be taken to implement the COOP plan.

Tests, training, and exercise plans are most effective when they provide for

- At least annual individual and team training of agency COOP team personnel to ensure currency of knowledge and integration of skills necessary to implement COOP plans and carry out essential functions;
- Annual internal agency testing and exercising of COOP plans and procedures to ensure the ability to perform essential functions and operate from designated alternate facility(ies);
- Quarterly testing of alert and notification procedures and systems for any type of emergency;
- Refresher orientation for COOP team members arriving at an alternate operating facility which covers the support and services available at the facility, including communications and information systems and administrative matters such as supervision, security, and personnel policies; and
- Joint agency exercising of COOP plans, when applicable and feasible.

Each and every training, drill, or exercise should be planned to achieve specific purposes, and an immediate review (oral or written or both) by participants, organizers, and senior leadership is essential. The review should focus on what happened, what went well, what did not go well, and how any of those results can be improved or changed. Changes should be considered and implemented as quickly as possible, because a real emergency situation testing those procedures and processes could happen soon.

UPDATING THE PLAN

Finally, a transportation agency is advised to review and update its plans regularly. The work of the COOP team does not end with the development and implementation of a COOP

program. Indeed, development and implementation are just the beginning. An effective COOP plan will not remain viable without regular review and revision.

The most obvious reasons to change the plan are the addition and/or subtraction of essential functions, of essential personnel, of essential resources, or essential support systems. The second most obvious need is to change processes, approaches, or procedures as a result of lessons learned through drills and exercises.

The following situations might prompt a review and potential update at any time:

- Extended leave or absence of key personnel (because of sickness, debilitating injury, retirement, or death);
- New hiring of a person to a position included on any COOP team roster, delegation of authority listing, or succession plan;
- New functions of the agency or functions assumed by the agency that are considered to be essential because of statutory or regulatory requirements, public safety needs, or administrative priority;
- Retirement of and/or introduction of equipment or other non-human resources that have been or will be used to support an essential function;

- Change in plans for alternate location sites and/or contact persons; and
- Changes in agency priorities and/or policies on security functions at main facilities or alternate facilities.

A plan that is out of date can itself be a threat to an agency, because the absence of key personnel, incorrect telephone or address information that prevents contacts being made, and subsequent delays could threaten the safe and orderly transfer of operations to alternate means or to alternate locations.

Completed worksheets prepared using these guidelines, or those that have been created by or modified by a transit/transportation agency, can be incorporated directly into the COOP plan. The objective is to ensure the plan accurately reflects the capabilities and requirements of the transportation agency to provide essential functions during an emergency that disrupts normal operations.

Using the sample plan, the transportation agency can modify the text to create a document that reflects its unique requirements. As appropriate, supporting procedures and checklists may be developed. Worksheet 33 can be used by the COOP team to make sure that the developed plan addresses the COOP requirements discussed in these guidelines.

WORKSHEETS

WORKSHEET 1: COOP LEADER SELECTION

The COOP team is led by an appointed COOP leader within the agency. Information on the current COOP leader is as follows.

COOP Leader Selection Documentation	
Name	
Date appointed as COOP leader	
Full-time or part-time position?	
If part-time, state normal position held and percentage of time to be devoted to COOP activities	
Person to whom COOP leader reports	
Brief professional background details	
Normal contact details (work phone, email)	
Emergency contact (home, cell, pager numbers)	
Completed by: Name	Date:
Reviewed by: Name	Date:

WORKSHEET 2: COOP TEAM MEMBERS

The COOP team has overall responsibility for the development and maintenance of the COOP Plan. Members of the COOP team are currently as follows.

COOP Team Members		
Name	Job Title and Department within Agency	Date of Appointment
Individual responsibilities within the COOP team:		
Name	Job Title and Department within Agency	Date of Appointment
Individual responsibilities within the COOP team:		
Name	Job Title and Department within Agency	Date of Appointment
Individual responsibilities within the COOP team:		
Name	Job Title and Department within Agency	Date of Appointment
Individual responsibilities within the COOP team:		
Name	Job Title and Department within Agency	Date of Appointment
Individual responsibilities within the COOP team:		
Name	Job Title and Department within Agency	Date of Appointment
Individual responsibilities within the COOP team:		
Name	Job Title and Department within Agency	Date of Appointment
Example: Sam Brooks	Maintenance Manager	5/5/55
Individual responsibilities within the COOP team: Example: Security and equipment of alternate facility.		
Completed by: Name		Date:
Reviewed by: Name		Date:

WORKSHEET 3: INITIAL COOP TEAM MEETING

The initial meeting of the COOP team will be held on <PLACE>, <DATE>, <TIME> to discuss the following:

Initial COOP Team Meeting Topics	
Topic	Check Off
COOP team organization	
Roles and responsibilities	
Project deliverables	
Project deadlines	
Reporting process	
Review and approval process	
Coordination with external response agencies	
Completed by: Name	Date:
Reviewed by: Name	Date:

WORKSHEET 4: COOP TEAM MISSION STATEMENT

Mission Statement	
This COOP team has been assigned by the [<i>executive director/general manager</i>] to direct development of a comprehensive continuity of operations capability for [<i>insert name of transportation agency</i>]. Because of the importance of this planning effort, members of this team have been assigned from all major [<i>departments/divisions/units</i>] within the agency. The team is responsible for preparing a Continuity of Operations (COOP) plan, as well as for overseeing the process required to implement, validate and maintain a continuity capability.	
<i>Completed by:</i> Name	<i>Date:</i>
<i>Reviewed by:</i> Name	<i>Date:</i>

WORKSHEET 5: COOP TEAM OBJECTIVES AND DELIVERABLES

To enable the COOP team to focus their efforts on the key issues, and to ensure that the work undertaken is relevant to the requirements of the project, the objectives and deliverables are clearly defined. The following list of objectives and deliverables has been approved by the senior management.

Objectives of COOP Team	
Main objective of COOP team:	
Sub-objectives of COOP team:	
Deliverables of COOP team:	
Completed by: Name	Date :
Reviewed by: Name	Date :

WORKSHEET 6: PROJECT MILESTONES

Realistic and achievable project milestones have been established to enable progress to be tracked against an approved schedule. The following project milestones have been agreed to.

[illegible]

WORKSHEET 7: PROJECT REPORTING REQUIREMENTS AND FREQUENCY

The COOP leader issues a [weekly/monthly/quarterly] report to senior management. This report contains a brief executive summary, which is additionally distributed to the executive director/general manager and board members as appropriate.

COOP Leader	
Distribution for COOP leader's monthly progress report is as follows.	
Name of Person	Name or department/unit for which responsible
Distribution for executive summary only:	
Name of Executive or Board Member	Department represented within agency
The contents of the report include: Activities accomplished during the previous month: <i>Activities completed</i> <i>Outstanding issues encountered</i> <i>Means of resolving these issues</i> Progress made against agreed milestones: <i>Milestone description</i> <i>Scheduled date</i> <i>Progress made</i> <i>Likelihood of meeting scheduled date</i>	
Completed by: Name	Date:
Reviewed by: Name	Date:

WORKSHEET 8: COST PLANNING TEMPLATE

Costs can be identified for the COOP plan. Descriptions should be sufficient to ensure that managers not involved with the project can understand the nature of the proposed expenditure.

Cost Planning Template			
Description of Item (Include Purpose)	Number of Units/ Hours	Unit of Measure (e.g., Hour, Doz., Gal.)	Cost
Total Estimated Cost			
Additional Comments			
Completed by: Name		Date:	
Reviewed by: Name		Date:	

WORKSHEET 9: REQUIRED DOCUMENTS AND INFORMATION

The COOP team has prepared the following list of documents and information that are required to be shared with the COOP team. Where this includes documents containing sensitive information, care is taken to ensure that confidentiality is not compromised. Copies may be provided, rather than originals, and security will be maintained.

Required Documents and Information	
Description of Document/Information	Document Location
Example: Copy of building lease.	Office of Chief Financial Officer
Completed by: Name	Date:
Reviewed by: Name	Date:

WORKSHEET 10: CAPABILITIES SURVEY TEMPLATE

Each potential disaster or emergency situation has been examined by the COOP team. The focus here is on the level of disruption that could arise from each type of event. Potential disasters resulting have been assessed as follows.

Potential Emergency	Probability Rating (See Table Below)	Impact Rating (See Table Below)	Agency Capabilities to Manage Emergency	Disruption Potential (See Table Below)

PROBABILITY RATING		IMPACT RATING		OVERALL DISRUPTION POTENTIAL	
Score	Level	Score	Level	Score	Level
5	Very High	5	Loss of Transportation System	5	Priority
4	High	4	Loss of Critical Systems	4	High
3	Medium	3	Loss of Non-Critical Systems	3	Medium
2	Low	2	Minimal Loss	2	Low
1	Very Low	1	No Loss	1	Very Low
Completed by: Name			Date:		
Reviewed by: Name			Date:		

WORKSHEET 11: AREAS OF RESPONSIBILITY

Use the transportation/transit agency's mission statement, values, goals and objectives, the organization chart, and a brief review of agency operating procedures, rulebooks, and legal authorities, to identify the agency's areas of responsibility generally.

Number	Areas of Responsibility
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
Example	Maintenance of highway and/or track

WORKSHEET 12: FUNCTIONS PERFORMED BY AREAS OF RESPONSIBILITY

Complete Worksheet 2 for each area of responsibility identified in Worksheet 1. List the functions performed and provide a brief description of the activities typically performed in the identified function.

Area of Responsibility: _____

Example Responsibility: Maintenance of highway/track

Number	Functions Performed	Brief Description	Essential? Y/N
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
Example	Visual inspection of track	Personnel perform routine inspection of track weekly, walking 4 to 5 miles	Yes
Example	Schedule litter pickup	Maintenance crew reports litter issue for volunteer Adopt-A-Highway group attention or scheduled activity for crew	No

WORKSHEET 13: CRITERIA FOR SELECTING ESSENTIAL FUNCTIONS

Based on the review of emergency response plans, emergency operating procedures, and brainstorming sessions among COOP team members, transportation agency employees and supporting emergency responders, identify criteria for selecting essential functions.

Number	Criteria
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
Example	The function supports normal emergency response activities as planned by the local/regional emergency management agency.

WORKSHEET 14: ESSENTIAL FUNCTION QUESTIONNAIRE

Essential Function Questionnaire

Building on the results documented in Worksheet 12, the objective of this worksheet is to further evaluate essential agency functions and develop measures to minimize. If, at any point, the function is determined NOT to be essential, it is not necessary to complete the questionnaire for that function.

Area of Responsibility: _____

Function: _____

Services this function provides:

Other agency functions and other agencies that depend upon this function:

(Use reverse side if additional space is needed)

1. The loss of this function would have the following effect on the agency:

- ☐ Catastrophic effect on the agency or some divisions
☐ Catastrophic effect on one division
☐ Moderate effect on the agency
☐ Moderate effect on some divisions
☐ Minor effect on the agency or some divisions

2. How long can this agency function continue without its usual operation of information systems and telecommunications support? Assume that loss of support occurs during your busiest, or peak, period. Check one only.

Check	Period of Time	Check	Period of Time	Check	Period of Time
☐	Hours	☐	Up to 3 days	☐	Up to 3 weeks
☐	Up to 1 day	☐	Up to 1 week	☐	Up to 4 weeks
☐	Up to 2 days	☐	Up to 2 weeks	☐	Other (specify)

Indicate the peak time(s) of year and/or a peak day(s) of the week and/or peak time of the day, if any, for this function or its associated applications.

(Month)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
(Day)	Sun	Mon	Tue	Wed	Thu	Fri	Sat					
(Hour)	1	2	3	4	5	6	7	8	9	10	11	12
(Military time)	13	14	15	16	17	18	19	20	21	22	23	24

3. Are there any other peak load or stress considerations?

4. Have you developed/established any backup procedures (manual or otherwise) to be employed to continue agency functions in the event that the associated applications are not available? Consider how much data you can afford to lose. Consider data and/or applications on hard drives, CD-ROMs, floppy drives, Zip drives, as well as paper data.

If yes, how often have those procedures been tested?

5. The loss of this function would have the following legal ramifications due to regulatory statutes, contractual agreements, or law: (Specify the area of exposure)

6. The loss of this function would have the following negative impact on personnel in this agency:

7. The loss of this function would keep us from supplying the following services to the public and other entities:

8. Specify any other factors that are to be considered when evaluating the impact of the loss of the function:

9. Are there ANY other dependencies (partner, vendor, software, unique resources, etc.) not already identified above?

10. Does an analysis of the responses to the above questions indicate that this function is still to be considered "essential" to the agency? If yes, indicate below when such label is appropriate:

Always:

During the following period of the year: _____

During the following time of the month: _____

During the following time of the week: _____

Other time period. Specify: _____

**WORKSHEET 15: CRITICAL PROCESSES OR SERVICES, PERSONNEL, RECORDS, EQUIPMENT
AND RESOURCES, AND SYSTEMS SUPPORTING EACH ESSENTIAL FUNCTION**

Complete a separate worksheet for each essential function. First, list critical activities or tasks that support that function in the left-hand column. Next, determine the personnel needed to perform that service (not specific names, but number and abilities can be considered), and in the last columns list all records, equipment and resources, and systems needed to make that essential function operable. In all categories, ask yourself a variety of questions about such things as vendor and partner agency agreements or relationships, software and supplies/equipment issues, workstation needs, vital records and documents required, and communications with agency personnel and system customers.

Area of Responsibility: _____

Example Responsibility: Highway Maintenance

Essential Function: _____

Example: Field verification of detour signage in place when a little used route is needed due to some
emergency and emergency repair/placement/replacement.

Activity/Task	Personnel	Records	Equipment and Resources	Systems
Example: Drive detour route ASAP to ascertain if signage in place is acceptable and clear.	Team of 2 preferred.	Map/drawing of sign placement that is in place or that should be put in place.	Sign repair, replacement, or sign erection materials. (Be sure to consider if a vendor or partner maintains sign inventory that could be borrowed or purchased.)	No special systems would be required beyond dependable field communications (radio, cell phone).

WORKSHEET 16: MANAGEMENT, TECHNICAL, AND SUPPORTING PERSONNEL

Complete a separate worksheet for each essential function. Complete this worksheet to identify, for each essential function, the senior management and technical positions (not persons by name) needed to lead the essential functions and the support positions necessary to carry it out. Assume for this exercise that you have access to all personnel at the time you need all personnel.

Area of Responsibility: _____

Essential Function: _____

[illegible]

WORKSHEET 17: PRIORITIZED LISTING OF ESSENTIAL FUNCTIONS

[illegible]

WORKSHEET 18: REQUIREMENTS FOR ALTERNATE WORK SITES

To complete Worksheet 18, identify the requirements for the alternate work site by essential function. Requirements include personnel, special needs, power, communication, and space.

Area of Responsibility: _____

Essential Function: _____

Example: Relocating a purchasing office from a central location to a field location, so that emergency purchasing can be accomplished

Number of Personnel	Human Needs (special)	Power	Communication	Space Requirements
Example: 3		Required for three PCs and one networked printer	Land line telephone, modem access to the internet and remote accessibility to a Wide Area Network, along with access to shared servers, would handle communication.	A space no less than 180 square feet, and include chairs and desk/table arrangements for three persons

WORKSHEET 19: ALTERNATE WORK SITE OPTIONS

This worksheet serves several purposes. Not only will it help identify alternate work sites, it may also be used to track memoranda of understanding (MOU), leases, occupancy and cooperative agreements, and contracts with other entities for facility use.

Area of Responsibility: _____

Essential Function: _____

Facility	Agreement	Date Executed	Annual Cost	Special Notes
Example: Acme Fire Hall	MOU	5/5/55	\$1200	Fire Hall has access to radio as well as land line phone; 450 square feet with access for persons with disability. Tables and chairs to seat 120.

WORKSHEET 20: TRANSPORTATION, LODGING, AND FOOD

Complete the table while identifying the personnel needed for each essential function, arrangements for their work time, keeping in mind that not all personnel will need to be present at all times.

Area of Responsibility: _____

Essential Function: _____

No. of Personnel	Sleeping	Food	Transportation	Vendor Agreements	Support Services
Example: 10	5 at a time	30 meals/day	Van access for off-time errands	Acme Catering on contract	Offer MH/MR services as needed

WORKSHEET 21: SECURITY AND ACCESS

Each essential function may need a different level of security (e.g., locks, locks and guards, secure perimeter fence and guards, etc.) and secure storage needs and availability information. List the alternate facility for each essential function (could be the same for several essential functions) and determine security needs for each.

Area of Responsibility: _____

Essential Function: _____

Alternate Facility	Number of Personnel	Security Details	Secure Storage Needs and Availability
Example: Fire Hall, 555 Security Drive, Fifty-Five, PA 55555 Call 717-555-5555	25 at a time	Two locked doors; fenced yard; no need for guard unless civil unrest or perceived threat is expected	Lock down cage 15x50 feet fireproof, stores materials in advance, only keys at Acme Transit office, local police department – NO SECURE PARKING ON SITE.

WORKSHEET 22: TRANSPORTATION AGENCY ALTERNATE FACILITIES

[illegible]

Type of Authority	Position Title Holding Authority	Triggering Conditions
Example: Suspension of Regular Bus Service	General Manager	Physical absence AND inability to reach by pager and/or cell phone

WORKSHEET 25: DELEGATION OF AUTHORITY – RULES, PROCEDURES, AND LIMITATIONS

Complete this worksheet for each position identified in the second column of Worksheet 24, *Matrix for Listing Delegation of Authority*. Indicate the position on the line below and then list any rules for the delegation that may exist, outline procedures for the delegation including notification of relevant staff of the transfer of power, and limitations on the duration, extent and scope of the delegation.

Position Holding Authority: _____

Rules	Procedures	Limitations
If General Manager is physically absent from the facility AND can't be reached by pager or cell phone within 30 minutes	Assistant GM is contacted for decision; In her absence, Operations Manager is contacted; In his absence, etc.	No service schedule changes may be announced without prior consultation with emergency management agency, and subsequent to the change, normal media contacts

WORKSHEET 26: ORDERS OF SUCCESSION

List orders of succession to key positions essential to the transportation agency's COOP plan. Based on previous experience, whenever possible, transportation agencies may choose to investigate options that enable key successors to be geographically dispersed, to ensure that succession to office can occur during any type of emergency.

Officials (Title)	Designated Successor(s) (Title)	Limitations/ Conditions	Responsibilities
Example: Chief Executive Officer	Chief Information Officer	Absence of CEO and inability to contact	CEO overall responsibility and direction
Example: Chief Information Officer	1. Deputy CIO; 2. Chief tech	Automatic succession if CIO is unavailable or filling CEO role	Direction of IT support, telecommunications hardware/software issues
Example: DOT Equipment Maintenance Director	1. Assistant Maintenance Director; 2. Lead Mechanic; 3. Lead maintenance repairman; 4. Nearest county maintenance chief	As per mutual agreement with the bargaining unit, all overtime rules are suspended for the time that COOP plan is in effect. Successor should work with union steward when possible to make assignments.	Person in position is charged with making all necessary repairs, directing repairs be made, and providing adequate staff to make repairs and adequate parts and/or tools to make repairs

WORKSHEET 27: VITAL RECORDS

List vital records, regardless of media, essential to the continued functioning or reconstitution of an organization. Include consideration of securing as many records as possible off-site with regular backup or provision at alternate facility, or making data portable (i.e., memory sticks). Maintenance frequency refers to the schedule or timetable for checking and/or updating this vital record.

Vital File, Record, or Database	Forms of Record (electronic [including format], hard copy, etc.)	Accessible at Alternate Facility?	Available from original or alternate source?	Stored in original facility at?	Maintenance Frequency
Example: Lease for main facility	Hard copy AND .pdf file	No	Central office has copy on file; Office of Comptroller	Finance, 3 rd floor bottom left drawer of file cabinet facing windows	Annual

WORKSHEET 28: RESTORATION AND RECOVERY RESOURCES

Identify all record recovery and restoration resources, contact information and services available below. Include evening, holiday, and emergency/alternate contact information, as well as contact information for regular business hours.

Company Name	Contact Name	Address / Phone	Services
Example: Data Recovery Systems, Ltd.	Main contact: Bill Jones Alternate contact: Mary Smith	W: 12 South St., Fifty-Five, PA (555) 555-1212 Pager: 555-555-1111 Cell: 555-555-9999 On-call person carries the pager, Bill or Mary always has it.	Copying of backup tapes for distribution to multiple alternate sites; Troubleshooting assistance in-person promised 2-hour response.

WORKSHEET 29: COMMUNICATIONS SYSTEMS SUPPORTING ESSENTIAL FUNCTIONS

Complete a separate worksheet for each essential function. Review information already gathered on vital systems and equipment for clues on communication systems that support critical processes and services and in turn their associated essential functions. In this chart, list the current vendor and its contact information; the services the vendor is currently providing the agency; and any special emergency services the vendor has to offer.

Essential Function: _____

Communication Mode	Current Provider	Services Provided	Special Services Available	Alternate Provider?
Voice Lines				
Fax Lines				
Data Lines				
Cellular Phones				
Pagers				
Email				
Internet Access				
Instant Messenger Services				
Personal Digital Assistants (PDAs)				
Radio Communication Systems				
Other				

WORKSHEET 30: PREVENTIVE CONTROLS FOR COMMUNICATION SYSTEMS

Complete a worksheet for each facility and indicate whether the facility is a primary or alternate work site. Identify all the optimal preventive controls for each communication system and then list the preventive controls currently in place for that mode of communication. Examples of preventive controls might be uninterruptible power supplies, generator back-up, water sensors, etc.

Facility: _____ ☐ Primary ☐ Alternate

Communication System	Optimal Preventive Controls	Preventive Controls Currently In Place
Voice Lines		
Fax Lines		
Data Lines		
Cellular Phones		
Pagers		
Email		
Internet Access		
Instant Messenger Services		
Personal Digital Assistants (PDAs)		
Radio Systems		
Other		

WORKSHEET 31: ALTERNATIVE MODES OF COMMUNICATION

Copy the information gathered in Worksheet 29, Communications Systems Supporting Essential Functions, into this table and identify alternative providers and/or modes of communication. Communications systems already in place can be named as alternative modes for other modes of communication. For example, radios could be an alternative mode of communication for voice lines.

Communication Mode	Current Provider	Alternate Provider	Alternative Mode #1	Alternative Mode #2
Voice Lines				
Fax Lines				
Data Lines				
Cellular Phones				
Pagers				
Email				
Internet Access				
Instant Messenger Services				
Personal Digital Assistants (PDAs)				
Radio Communication Systems				
Other				

WORKSHEET 32: PERSONNEL PREPAREDNESS

List critical personnel preparedness elements and describe where they are addressed by the transportation agency (in procedures, SOPs, training, job aids, plans, etc.). You may want to include where the information and/or products are located under normal conditions.

Personnel Preparedness Element	Where It Is Addressed (cite procedure, rule, checklist, etc.)
Example: Roster of Team Assignments	Administrative procedure 55, Human Resources office, updated X/X/XXXX – copies in Alternate Facility Six, 555 Fire Hall, and on file with county emergency management agency
Example: Pre-scripted messages for radio stations	Administrative procedure 55, Community Relations office, updated X/X/XXXX – copies on file with county emergency management agency

WORKSHEET 33: COOP PLANNING CHECKLIST

Transportation agencies may want to use the COOP planning checklist here to guide the COOP plan development process from the beginning, using the left-hand column to track actions and considerations, and/or using the right-hand column to list the page or pages within your plan that refer to that item.

Have I planned for?	Item/Description	Page#(s) in our plan
OVERARCHING ITEMS		
Y N	Plan objectives are clearly stated in the opening of the plan	
Y N	Provisions for the protection of critical equipment, records, and other assets are included in the overall planning process	
Y N	Provisions are included which maintain efforts to minimize human loss, damage and losses of resources	
Y N	Considerations for an orderly response and recovery from any emergency are incorporated into the planning process	
CAPABILITIES SURVEY		
Y N	Vulnerability to natural and human-caused emergencies is addressed	
IDENTIFYING ESSENTIAL FUNCTIONS		
Y N	Essential functions required by law are identified	
Y N	Essential functions that support public safety are identified	
Y N	Essential functions that support emergency responders are identified	
Y N	Essential functions that are required by contract are identified	
Y N	Essential functions that are time specific are identified	
Y N	Essential functions that are day-of-the-week specific are identified	
Y N	Essential functions that are monthly/seasonally specific are identified	
Y N	Essential functions are prioritized based on above criteria	
COOP PLAN DEVELOPMENT, REVIEW & APPROVAL/ SUPPORTING PROCEDURES		
Y N	Decision making conditions are clearly outlined for activation	
Y N	The plan can be activated during non-working hours	
Y N	The plan can be activated if no person can access or use the facility	
Y N	The plan can be activated if no person can access the surrounding area	
Y N	Communication process in times of advance threat warning established	
Y N	Communication process to notify all agency personnel is established	
Y N	Communication process is coordinated for all impacted decision makers	
Y N	Communication is coordinated with other agency offices/facilities	

Y N	Communication is coordinated with external emergency personnel	
Y N	Communication process is coordinated with key customers/users	
Y N	Communication process is coordinated with suppliers/partners	
Y N	Time-phased procedures facilitate response, relocation, restoration	
Y N	Personnel are assigned to functions based on skills and knowledge	
Y N	Authorities are identified which can and may be delegated	
Y N	Positions to which the authorities are delegated are listed	
Y N	The limitations of the delegations of authority are identified	
Y N	Plans are made for succession to key leadership positions	
Y N	Time or geographical limitations to succession are identified, addressed	
Y N	Succession order is described by position or titles rather than by person	
Y N	Orders of succession are revised and distributed as necessary	
Y N	Alternate facilities and the resources available at each facility identified	
Y N	Pre-positioning of assets and resources at alternate facilities considered	
COOP PLAN DEVELOPMENT, REVIEW & APPROVAL/ SUPPORTING PROCEDURES		
Y N	Reliable support services, infrastructure at alternate facility identified	
Y N	Alternate facilities will be available within 12 hours, up to 30 days	
Y N	Physical security and access at alternate facility considered	
Y N	Data/communications systems identified to support essential functions	
Y N	Interoperable communications plans for internal and external use	
Y N	Provisions for redundant communications are included in the COOP plan	
Y N	Planning includes potential off-site storage of duplicate records	
Y N	Regular and timely maintenance of alternate facility is scheduled	
Y N	Plan ensures back-up for legal and financial records	
Y N	Transportation, lodging, meals at alternate facility all addressed	
Y N	Relocation of personnel, receiving plan at alternate site addressed	
Y N	After-action review process identified for use after COOP activation	
Y N	Staff roster for each essential function by position, with contact information	
Y N	Reliable processes are in place to acquire additional resources to sustain operations for 30 days	
Y N	Documentation of all supporting procedures and/or checklists	
Y N	Procedures in place to notify customers, of new work location, phone numbers, re-route US mail, etc.	
Y N	The COOP plan contains updated appendices with detailed	

	information on specific procedures, contact names, numbers always up to date	
Y N	Provisions are included for the preparation and pre-positioning off-site of drive-away kits	
Y N	Measures are included in the planning which address pay status, administrative leave, and layoffs	
Y N	Information has been included which provide guidance to personnel on medical, special needs, and travel issues	
Y N	The physical security of the primary facility during the COOP activation and operations has been addressed within the COOP plan or procedures	
TRAINING PERSONNEL, TESTING THE PLAN, KEEPING PLAN UP TO DATE		
Y N	Training and orientation curriculum has been developed which creates awareness and enhances the skills of the agency's personnel	
Y N	Training is developed which ensures that the key leadership are prepared to perform their emergency duties	
Y N	Training plan addresses knowledge and skills sets	
Y N	The COOP plan contains a comprehensive test, drill, and exercise program	
Y N	Provisions are included for periodic test of the alert and notification procedures	
Y N	Periodic exercises of operational plans, alternate facilities, and interoperable communications are incorporated into the COOP plan	
Y N	Periodic validation and test are included for equipment at the alternate facility in the COOP plan	
Y N	A remedial action plan/process has been established which incorporates lessons from the test, training, and exercise program	
Y N	Procedures are included which ensure that this plan will be maintained at a high level of readiness	

Abbreviations used without definitions in TRB publications:

AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
APTA	American Public Transportation Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATA	American Trucking Associations
CTAA	Community Transportation Association of America
CTBSSP	Commercial Truck and Bus Safety Synthesis Program
DHS	Department of Homeland Security
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
IEEE	Institute of Electrical and Electronics Engineers
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITE	Institute of Transportation Engineers
NASA	National Aeronautics and Space Administration
NCHRP	National Cooperative Highway Research Program
NCTRP	National Cooperative Transit Research and Development Program
NHTSA	National Highway Traffic Safety Administration
NTSB	National Transportation Safety Board
SAE	Society of Automotive Engineers
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
TCRP	Transit Cooperative Research Program
TEA-21	Transportation Equity Act for the 21st Century
TRB	Transportation Research Board
TSA	Transportation Security Administration
U.S.DOT	United States Department of Transportation