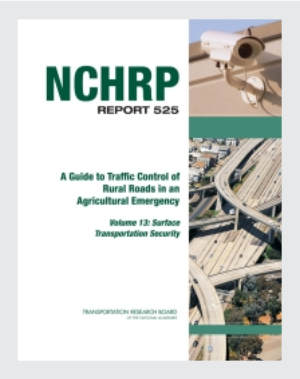

A Guide to Traffic Control of Rural Roads in an Agricultural Emergency

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NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

NCHRP REPORT 525

Surface Transportation Security

Volume 13

A Guide to Traffic Control of Rural Roads in an Agricultural Emergency

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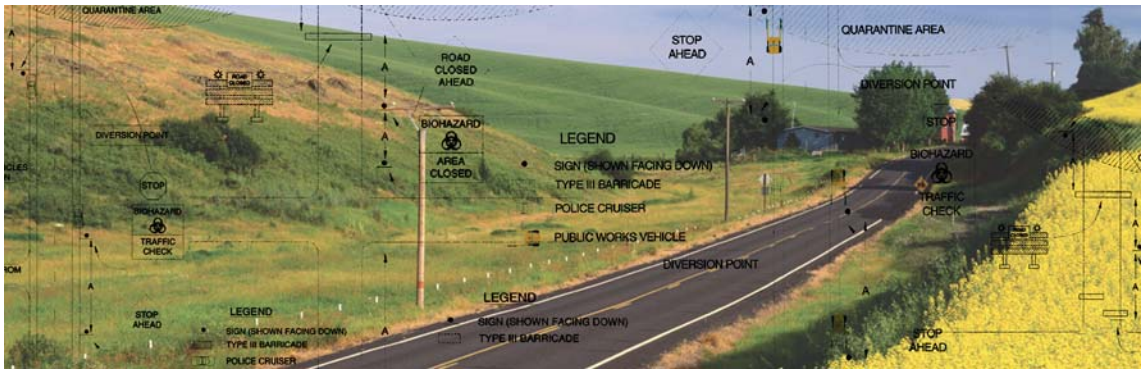

SUBJECT AREAS
Planning and Administration • Operations and Safety • Freight Transportation • Security

Research sponsored by the American Association of State Highway and Transportation Officials
in cooperation with the Federal Highway Administration

TRANSPORTATION RESEARCH BOARD

WASHINGTON, D.C.
2008
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NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

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The needs for highway research are many, and the National Cooperative Highway Research Program can make significant contributions to the solution of highway transportation problems of mutual concern to many responsible groups. The program, however, is intended to complement rather than to substitute for or duplicate other highway research programs.

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FOREWORD

By S. A. Parker
Staff Officer
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There are concerns about the vulnerability of U.S. agriculture to the deliberate introduction of animal and plant diseases (referred to as agroterrorism). Response to agricultural emergencies—whether attributed to agroterrorism or naturally occurring outbreaks of food contamination or animal disease—often requires immediate (within hours) isolation and/or quarantine of potential infection or contamination areas.

This guide provides recommended practices and procedures associated with traffic control on local and state roads during agricultural emergencies. The guide should aid state and local officials in responding to agricultural emergencies. The guide was reviewed by many state and local agencies, and workshops were held in Dodge City, Kansas; Mankato, Minnesota; West Plains, Missouri; and Athens, Tennessee. Scenarios of agricultural emergencies were included in these workshops to gauge how useful the guide was in aiding local agencies in establishing and maintaining traffic control in quarantine situations. The guide contains traffic control plans for three levels of traffic control based on the type of disease and location of the traffic control point.

The guide is supplemented online with a downloadable PowerPoint slide show and a detailed research report.

The Midwest Research Institute prepared this volume of *NCHRP Report 525* under NCHRP Project 20-59(22).

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 thirteenth volume of *NCHRP Report 525: Surface Transportation Security,* a 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* may be found on the TRB website at http://www.TRB.org/SecurityPubs.

CONTENTS

CHAPTER 1

Introduction

In recent years, new concerns have arisen about the vulnerability of U.S. agriculture to the deliberate introduction of foreign animal and plant diseases, referred to as agroterrorism. Several of the national planning scenarios outlined in the Homeland Security Presidential Directive/HSPD-8, National Preparedness (*1*), call on transportation agencies to prepare for their roles in the National Incident Management System (NIMS), (*2*) which provides "a consistent nationwide approach for federal, state, 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."

Responding to agroterrorism or other natural or accidental biological outbreaks of foreign animal or plant diseases, collectively referred to as "agricultural emergencies" for the purpose of this guide, could require immediate isolation and/or quarantine of potentially infected areas. Research indicates that the economic impact of the outbreak is a function of the time it takes to enforce quarantine and eradicate or control the infection. Therefore, it is essential that local responders have the tools and resources needed to implement a response within the first few hours of notification. In the event of an animal disease outbreak, a quarantine boundary may enclose an area with a 3- to 6-mi (5- to 10-km) radius that could cross more than 30 roads and could be enforced for several months. While federal support for longer-term assistance may arrive in a few days, containment of the disease agent requires an effective, complete, and locally implemented response within hours.

The purpose of quarantines is to isolate a disease and to stop the spread of the organisms that cause the disease. Citizens of rural counties are accustomed to free movement, full access, and unrestricted freight movement; however, in a foreign animal or plant disease emergency, biosecurity must take precedence over normal rural transportation needs. The area to be quarantined will be determined based on the disease, the local environment, and the location of other susceptible plants or animals. Other conditions such as weather, wind direction, and the methods that are available to combat the disease's spread will be considered as well.

Rural law enforcement agencies are unlikely to have the ability to control vehicle movement at all of the entrances and exits around a quarantine boundary at one time, and rural public works departments or local DOT offices will most likely only have enough signs and barricades on-hand to detour one or two roads in a county. Thus, more innovative methods are needed that can be implemented in partnership with law enforcement, military (Active, Reserve, and Guard), the private sector, transportation agencies, and other organizations at the local and state levels.

1.1 History of Agroterrorism in the United States

While the United States has experienced intentional attacks on its food supply, such as the intentional placement of salmonella in salad bars in Oregon in 1984, all of the incidents

involving foreign animal and plant diseases have occurred accidentally or naturally, and they include the spread of the following: Exotic Newcastle Disease (END) in California and Nevada in 2002; Avian Influenza in Texas, Delaware, New Jersey, and Maryland in 2004; Citrus Canker in Florida, detected in 1995 and currently still not eradicated; and Soybean Rust in the South since 2004. The distinction between intentional, natural, and accidental infections is relevant to the response plan in two ways. First, a coordinated intentional attack is likely to stretch the resources of the federal and state governments and to place more responsibility on local governments to contain and control the outbreak with limited outside help. Second, an intentional attack would require that some law enforcement resources be dedicated to the criminal investigation instead of to the emergency response.

When Tommy Thompson stepped down as Secretary of Health and Human services in 2004, he expressed concern over the vulnerability of the United States' food supply. Thompson said, "I, for the life of me, cannot understand why the terrorists have not, you know, attacked our food supply because it is so easy to do" (*3*). His statement raised alarm and increased focus on protecting the country's food supply.

1.2 Purpose of the Guide

The purpose of this guide is to aid rural law enforcement and emergency responders in handling traffic control during an agricultural emergency. While local responders may rely on existing Emergency Operations Plans for guidance in implementing general aspects of the response, traffic control is rarely covered specifically in these plans. This guide should fill this gap and supplement existing local emergency response plans.

In addition, this guide identifies the role of local and state highway agencies in emergency traffic control planning and implementation. For instance, many existing emergency response plans leave traffic control solely up to law enforcement officials. Although this may be appropriate in some emergency situations, a rural law enforcement agency will most likely lack the expertise, manpower, and traffic control resources needed to establish and enforce quarantine boundaries. Therefore, county and municipal public works departments, along with local or regional state DOT construction, traffic, and maintenance staff, should be involved in both the planning and implementation of a successful traffic control plan for use in a quarantine or stop movement scenario. This guide will outline the roles of public works and law enforcement and address the need for communication and coordination before and during a response.

Because such incredible variation of legal guidelines, resources, and priorities exists between most districts, this guide is not intended to be prescriptive in nature. Instead, it presents a framework that focuses on both planning and implementation, emphasizing the importance of integrating transportation response guidelines into existing emergency response plans.

1.3 Organization of the Guide

This guide describes the necessary elements of both planning and implementing emergency traffic control and provides suggestions for and examples of traffic control at checkpoints and roadblocks.

Chapter 2 describes the three phases of the traffic control response to an agricultural emergency, including pre-incident planning, temporary traffic control around the immediate vicinity of the suspected infection, and long-term traffic control around an established quarantine boundary. These phases relate to traffic control in an agricultural emergency and are similar, but not identical, to the NIMS stages of prevention, preparedness, response, and recovery. Phase 1 is part of

preparedness and includes planning for traffic control activities that will be required. Response is covered in Phases 2 and 3 and includes initial and long-term traffic control activities. The NIMS stages of prevention and recovery are not covered in this guide.

Chapter 3 discusses command structure and the place of traffic control within existing structures. Issues addressed in this chapter include the following:

- Stakeholders, responsibilities, and authority;
- Potential modifications to existing command structures;
- Communication plans;
- Mutual-aid;
- Standard operating guidelines;
- Resource needs and availability;
- Resource management, ownership, mobility, and sharing agreements.

Chapter 4 discusses the issue of traffic control at an established quarantine boundary. It describes the process for prioritizing road closures and traffic checkpoints and determining the appropriate levels of traffic control at each point. This chapter also contains illustrations of traffic control layouts for different levels of control.

Chapter 5 concludes the guide by emphasizing the need for planning and flexibility and provides a list of helpful biosecurity measures for responders. This chapter also provides additional background information on agroterrorism, foreign plant and animal diseases, emergency management training, and national emergency preparedness and response documents.

Appendix A provides information on the policy background of agroterrorism. Appendix B explains terminology used throughout the guide.

1.4 Foreign Plant Diseases and Foreign Animal Diseases

Agricultural emergencies can involve either foreign plant diseases or foreign animal diseases (FAD). Symptoms of both of these types of diseases would normally be seen first by producers. While a veterinarian would normally be called in the case of an animal disease, it is more likely that the county extension agent would be asked to diagnose a plant disease. In most cases, traffic control would be the most challenging when dealing with FADs, and therefore, most of the examples used in this guide are related to FADs such as foot-and-mouth disease.

CHAPTER 2

Phased Response to Agricultural Emergencies

A three-phase response to an agroterrorism incident or other natural or unintended outbreak of a foreign animal or plant disease is presented in this chapter. The three phases are as follows:

1. Phase 1 takes place before an incident occurs, and is termed the planning phase.
2. Phase 2 typically occurs over the first 3 days of the incident, from the time an outbreak is suspected until it has been confirmed, and state and federal resources have become fully deployed. This phase involves an initial response orchestrated by local authorities using local, immediately available resources.
3. Phase 3 involves the long-term response, which is usually supported by state and/or federal resources. In the third phase, any nonstandard traffic control devices used in the second phase should be replaced with standard traffic control devices, and the number of traffic checkpoints and roadblocks may be increased to more thoroughly secure the perimeter of the quarantine area.

Table 2-1 provides a breakdown of the three phases. For each phase, the table lists the personnel involved and their likely tasks and responsibilities, as well as information on quarantine authority, traffic control, and timeframe. While each state and local jurisdiction may have different response plans and authority structures, the table presents general information that is applicable to most locations. The guide is written with the assumption that the leadership for local response is at the county government level, although other local government units, such as cities, towns, villages, and townships may have leadership responsibility in some cases.

2.1 Phase 1: Planning

Phase 1, referred to as the planning phase, should be viewed as an ongoing process that is continually upgraded and refined as threats are better understood and as resources and technologies become available. Phase 1 may include the following tasks:

- Identify major agricultural routes through the county;
- Develop standard detour routes through the county;
- Inventory traffic control devices, such as signs, barricades, changeable message signs, etc.;
- Identify other available local items that might be used to provide traffic control;
- Develop a command structure with personnel and responsibilities specific to a foreign animal or plant disease outbreak;
- Develop traffic control plans for road blocks, traffic checkpoints, and disinfection stations;
- Foster relationships among stakeholders (law enforcement, producers, public works, state highway departments, and public health officials);
- Develop a communications plan for informing the public of road closure;
- Determine legal authority for initiating and enforcing a quarantine or stop movement order;

Table 2-1. Phased response to Foreign Animal Disease (FAD) outbreak.

	Phase 1: Planning Prior to Incident		Phase 2: Initial Response: Detection to Confirmation		Phase 3: Long-term Response: Confirmation to Restoration	
	Personnel	**Tasks**	**Personnel**	**Tasks**	**Personnel**	**Tasks**
Responsible Person or Incident Commander	**County Emergency Manager**	Initiate planning, preparation, and training for the county's response to a FAD.	**Law Enforcement**	Provide enforcement for Foreign Animal Disease Diagnostician (FADD) issued quarantine if necessary. Begin to assess required traffic control if test results are positive and a 6-mi radius buffer zone is required.	**Incident Comander**	Request state or federal resources or assistance if needed. Act as liaison between local, state, and federal responses. Identify no-access points and controlled-access points.
Other Personnel	**Fire and EMT personnel**	Become familiar with disinfection procedures for different possible FADs. Identify what equipment is needed and where it can be obtained.	**Land owner where disease is suspected (farmer, producer, grower, etc.)**	Comply with FADD's instructions regarding animal movement and care and disinfection of vehicles and people. Stop scheduled deliveries and visits to the premises.	**Law Enforcement**	Supervise staffing at traffic stops and road blocks, ensure problems are being addressed and training and guidance are provided as needed.
	Local producers and producer organizations	Implement biosecurity measures. Educate about all producers and livestock in the area (by required or voluntary registration). Encourage voluntary cooperation with quarantines and stop movement orders.	**FADD (Foreign Animal Disease Diagnostician) or other qualified veterinarian who can act on behalf of the state veterinarian**	Remain on premises, issue verbal quarantine if necessary, monitor and control traffic into and out of infected premises. Maintain communication with state veterinarian. Make contact with county and state emergency manager. Direct law enforcement in securing immediate premises. Assist fire department or other responders with disinfection for people and vehicles that must enter and exit the premises.	**State Department of Agriculture personnel**	Coordinate care of animals stopped in the county. Study epidemiology of outbreak to determine quarantine area and necessary biosecurity and disinfection measures.
	Law Enforcement	Assess ability to enforce traffic stops. Determine availability and location of additional resources for closing roads or implementing traffic stops (signs, barricades, patrol cars, etc.). Create emergency management assistance compacts with surrounding jurisdictions to provide help with and resources for traffic control efforts.	**County Emergency Response Team**	Use county's Local Emergency Operations Plan (LEOP) to begin preparing for an emergency response. Provide support to FADD in basic emergency support function areas as needed. Public Information (PI) Officer should coordinate with PI personnel at the state level to prepare statements for the public if the FAD is confirmed.	**County Emergency Response Team (and SEMA, FEMA if needed)**	Implement county's Local Emergency Operations Plan (LEOP) [in conjunction with State Emergency Operations Plan (SEOP) if SEMA is involved] to provide and manage emergency support functions.
	County engineer and public works	Work with sheriff to identify signs, barricades, and other equipment. Help identify local roads with high livestock traffic. Determine roads suitable to serve as detours for truck traffic.	**State Department of Agriculture personnel and SEMA**	Prepare for state emergency response if FAD is confirmed.	**County Engineer and Area DOT Engineer**	Finalize and implement detour plans according to quarantine area developed by epidemiologists.
	Area engineer and maintenance crew from state DOT	Work with law enforcement and county public works to identify signs, barricades, and other equipment. Help identify state routes with high livestock traffic. Develop highway detour plans.	**Public Health Department**	Advise on PPE needed according to disease suspected.	**Public Health Department**	Ensure health of responders.
					Public Works and DOT Maintenance Crews	Install and maintain barricades and signs at road closures, detours, and traffic stops.

(continued on next page)

Table 2-1. (Continued).

	Phase 1: Planning Prior to Incident		Phase 2: Initial Response: Detection to Confirmation		Phase 3: Long-term Response: Confirmation to Restoration	
	Personnel	**Tasks**	**Personnel**	**Tasks**	**Personnel**	**Tasks**
	State Department of Agriculture representatives	Provide training and information regarding the state policies and procedures during a FAD outbreak.			**State and Federal Agencies (DOT, Dept. of Conservation, Highway Patrol, National Guard)**	Fulfill roles as defined in SEOP. Support local authorities as needed.
	Public Health Department	Prepare information about risk to humans from various FADs.			**Other Volunteers (firefighters, contractors, off-duty officers or maintenance staff, community groups)**	Provide additional support and equipment as needed (traffic control, disinfection, care of animals, provide equipment).
Authority for Quarantine or Stop Movement	**State Veterinarian, Governor, Livestock Commissioner or State Department of Agriculture Director**	Depending on the state, one of these officials may issue quarantines or stop movement orders when a FAD is suspected or detected in his or her state or in other states in the United States.	**Foreign Animal Disease Diagnostician or other qualified veterinarian**	States may have varying policies on who has the authority to issue a quarantine on behalf of the state veterinarian, but in all cases, a FADD who has inspected the animals and believes that a FAD is possible or highly likely can issue a quarantine on behalf of the state veterinarian. The quarantine can prohibit the movement of animals and can require disinfection of people who must leave the premises.	**State Veterinarian, Governor, Livestock Commissioner or State Department of Agriculture Director, Secretary of Agriculture (USDA)**	States may have varying policies on who is responsible to declare a quarantine or stop movement order, but once a FAD is confirmed, it is likely that livestock movement in the region, and potentially across the county, will be stopped completely.
Traffic Control	Identify routes of high animal traffic. Locate producers. Estimate livestock moved into, out of, and through the county. Plan detours for major routes and routes that pass through farms or near feedlots, sale barns, slaughterhouses, etc.		Restricting movement into and out of infected and surrounding premises. Farm entrances blocked with patrol cars, or other barriers in place. Certain local roads around the premises might be closed using patrol cars, barricades, hay bales or other devices.		Epidemiologists will determine size of infected zone and buffer zone (estimated 6-mi radius). All routes in and out should be closed or staffed as a traffic stop and disinfection station. Stops and closures should be to MUTCD standards as resources and time allow.	

- Identify, with the help of public health officials and veterinarians, the appropriate personal protective equipment (PPE) and disinfectants to stock in case of an emergency;
- Train responders on traffic control procedures, such as establishing road blocks, traffic checkpoints, and cleaning and disinfection stations;
- Plan for response measures in the event that a bordering county or state suspects or confirms animal or plant disease;
- Form emergency management assistance compacts with surrounding law enforcement and highway or public works agencies;
- Identify contractors with equipment or trained personnel that may be available to assist in an emergency response;
- Determine areas in which to shelter diverted livestock; and
- Determine if sufficient quantities of common radio channels, protocols, and equipment are available.

In order to carry out these tasks, all identified stakeholders must be involved in Phase 1 planning. Law enforcement agencies are often given the responsibility of handling traffic control because they are trained in directing traffic and stopping vehicles for traffic violations and sobriety checks. However, the traffic control needed to enforce a quarantine with a radius of several miles may very well exceed both the training and the resources of a local law enforcement agency.

Because detours will need to be established, the agencies that maintain those detour roadways should also be involved in the planning process. For instance, the local office of the state highway agency and the city and county public works departments can contribute information about traffic volume, flow patterns, and roadway characteristics. While most communities probably lack experience with quarantine detours, it is likely that they have developed detours for road closures due to construction, weather, or natural disasters. This experience is useful and should be considered when planning detours for an agricultural emergency. Local producers (farm associations and commodity groups) can provide feedback on traffic routes and delivery patterns of agricultural products and livestock. Furthermore, agricultural officials, local public health officials, farmers, botanists, entomologists, conservationists, and veterinarians can offer advice on how plant and animal diseases are spread and the best methods for disease containment.

Representing a variety of disciplines in response planning will lead to a more robust and thorough plan.

2.2 Phase 2: Initial Response

Phase 2 concerns the intermediate traffic control to be implemented as soon as a foreign animal or plant disease is suspected with the resources immediately available to the local agency. At this point, traffic control will be dictated by the policy of the county and state in which the quarantine has been issued.

If the local Foreign Animal Disease Diagnostician (FADD) determines that a foreign animal disease is possible or highly likely, he or she may issue a quarantine on the livestock at a particular farm, ranch, or other agricultural center, as well as the surrounding farms, on behalf of the State Veterinarian. Alternatively, the Secretary of the State Department of Agriculture or the Governor, depending on where the authority lies, may issue the quarantine order. State and federal officials will be made aware of the situation as soon as the FADD makes a preliminary diagnosis during his or her site visit. Local law enforcement may be asked to help enforce the quarantine.

Samples from the potentially affected animals or plants will be sent to a USDA authorized laboratory to be tested for the presence of a disease, but results may not be available for 24 to 72 hours.

During this period, the county may choose to implement its local emergency operations plan (LEOP) and set up traffic control around the affected premises. Local authorities and the FADD will decide whether to implement traffic control beyond the immediate vicinity of the potential outbreak until a confirmation of disease is made. If policies are not in place to enable law enforcement to enforce quarantines before disease confirmation is received, the incident commander may elect to place voluntary movement restrictions around the quarantine area.

In some cases, traffic control in Phase 2 may consist of an officer in a squad car with its lights on, blocking a local farm road, or hay bales placed across a road with a "Road Closed" sign, forming a makeshift barricade.

Upon receipt of a FAD confirmation from the USDA authorized laboratory, federal and state resources may be made available for the response. As additional traffic control devices become available from federal, state, and other local agencies, nonstandard traffic controls should be replaced with standard devices. It is important to remember that events in Phase 2 are essentially local in nature, and depending on the nature and extent of the outbreak, it may be some time before federal and state assets can be deployed.

Phase 2 may include the following tasks:

- Informing stakeholders of suspected disease, if other animals are at risk;
- Gathering traffic control devices (including nonstandard devices);
- Gathering information on affected routes;
- Finalizing detour plans;
- Prioritizing road blocks and check points, and establishing levels of control;
- Enforcing a quarantine on livestock moving in or out of the area immediately surrounding where the disease is suspected;
- Initiating traffic control around a broader perimeter to contain the suspect disease (if deemed necessary by state policy or the local incident commander); and
- Preparing to deploy cleaning and disinfecting units to control points.

2.3 Phase 3: Long-Term Response

Phase 3 represents the long-term response to a positive confirmation of a foreign animal or plant disease and should be enforced until the disease is eradicated. During this phase, roadblocks and traffic stops are established around the full quarantine boundary (usually a 3- to 6-mi [5- to 10-km] radius around the infected premises); additional signs and barricades are put in place to replace temporary traffic control; permanent detours are established and marked by signage; and information regarding open routes is made publicly available.

Phase 3 may include the following task:

- Initiating traffic control around the quarantine area's perimeter, in locations not established in Phase 2;
- Replacing nonstandard devices with MUTCD-approved devices;
- Signing long-term detours;
- Initiating a public information campaign regarding detours, disinfection stations, travel restrictions, and other transportation-related issues; and
- Incorporating the available resources of state and federal agencies.

CHAPTER 3

Components of Agricultural Emergency Response

This chapter discusses the various components of response to an agricultural emergency, including the incident command structure, resource management, communications, mutual-aid, volunteers, and standard operating guidelines.

3.1 Incident Command System

To be NIMS compliant and eligible for federal programs and grants, cities, counties, and other local jurisdictions must have adopted and be trained in the Incident Command System (ICS) outlined in the National Response Framework (NRF). The ICS, outlined in Figure 3-1, includes a command staff with a public information officer, safety officer, and liaison officer, as well as a general staff that includes a planning chief, operations chief, finance and administration chief, and logistics chief. The four sections of the ICS may be subdivided differently depending on the type of emergency, agency resources, or the geographical area encompassed in the response.

Using the principle of unified command, each level of response (local, state, and federal) may have its own incident commander and command structure. However, the individuals occupying positions that correspond to others in respective structures should consult with one another to identify and work toward common objectives. In the case of an agroterrorism attack or the outbreak of a highly contagious animal or plant disease, state and federal officials will be made aware of the situation and become involved in the response as soon as the outbreak or attack is confirmed.

Although state and federal officials have detailed agricultural response plans and incident command structures, the initial response to an agricultural incident is handled at the local level. Thus, the ability of state and federal governments to successfully contain and eradicate a disease outbreak depends heavily upon the success of local responders in containing the outbreak at its earliest stages. The local incident command staff will handle the incident until state and federal agencies are available for support, at which point, local, state, and federal personnel work in unified command. Unified command can also be used to coordinate the actions of agencies in neighboring jurisdictions when the area of infection crosses county lines and independent county emergency response teams have to work together to handle the incident.

Local and state emergency response plans may contain chapters or annexes that pertain specifically to agricultural or FAD emergencies. Although some plans may contain detailed, response-specific incident command structures, local agencies should review these plans to verify that responsibility is assigned for all objectives, including traffic control. Many response structures include a transportation group, categorized as part of logistics or planning, responsible for: transporting responders to and from their work sites during their shifts, assisting in evacuations, or redirecting traffic around a single location. However, in the event of a quarantine,

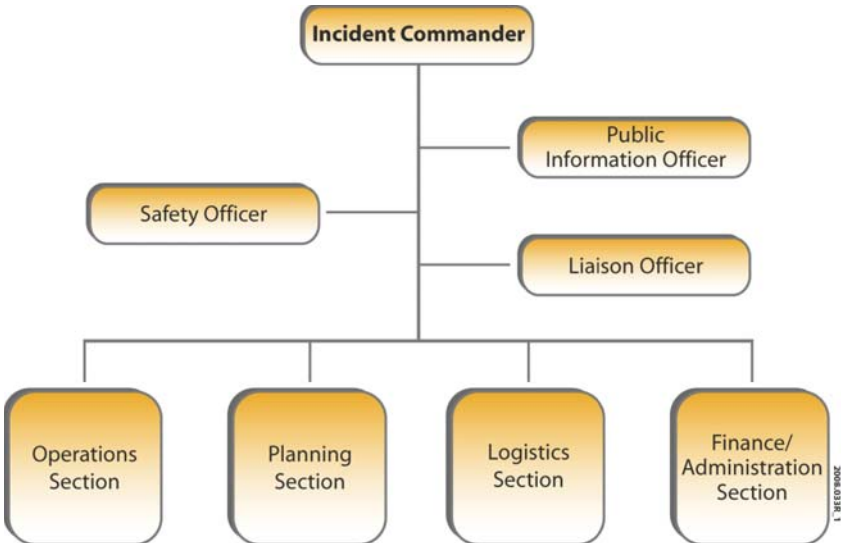

Figure 3-1. Basic incident command system.

the transportation-related responsibilities may expand considerably, and will most likely exceed the capabilities of one group.

In a typical ICS, the Operations Section is assigned responsibility for all activities focused on reducing the immediate hazard, saving human life and property, establishing situational control, and restoring normal operations. Traffic control around a quarantine boundary fits directly into the responsibilities of the Operations Section.

The structure of the Operations Section can be based on jurisdictional boundaries, operational considerations, or a combination of both. Further division of the Operations Section may vary, depending on the type of emergency. Figure 3-2 shows an example of how the Operations Section might be organized in the event of an FAD outbreak. In this example, transportation responsibilities are divided between groups in all three branches. Each branch within the Operations Section would be managed by one person, who would report to the Operations Section Chief, and each group within a branch would be led by one person, who would report to the Branch Manager. In following the principles of the ICS as described in the NIMS, each person reports to only one person, with no more than three to seven people reporting to any one person.

The division of responsibilities illustrated in Figure 3-2 is intended to meet the specific objectives of FAD containment and includes disease control, traffic control, and quarantine enforcement. Each group has several sub-objectives, each of which is managed by a group dedicated to that task.

The tasks managed by the Disease Control Branch might include the following:

- Receiving and holding livestock that cannot enter the quarantine area and cannot be sent elsewhere;
- Cleaning and disinfecting vehicles, equipment, animals, and people leaving the quarantine area; and
- Euthanizing and disposing of diseased or exposed animals and agricultural products (such as milk).

The Traffic Control Branch might be tasked with the following:

- Planning detours;
- Monitoring traffic queues;

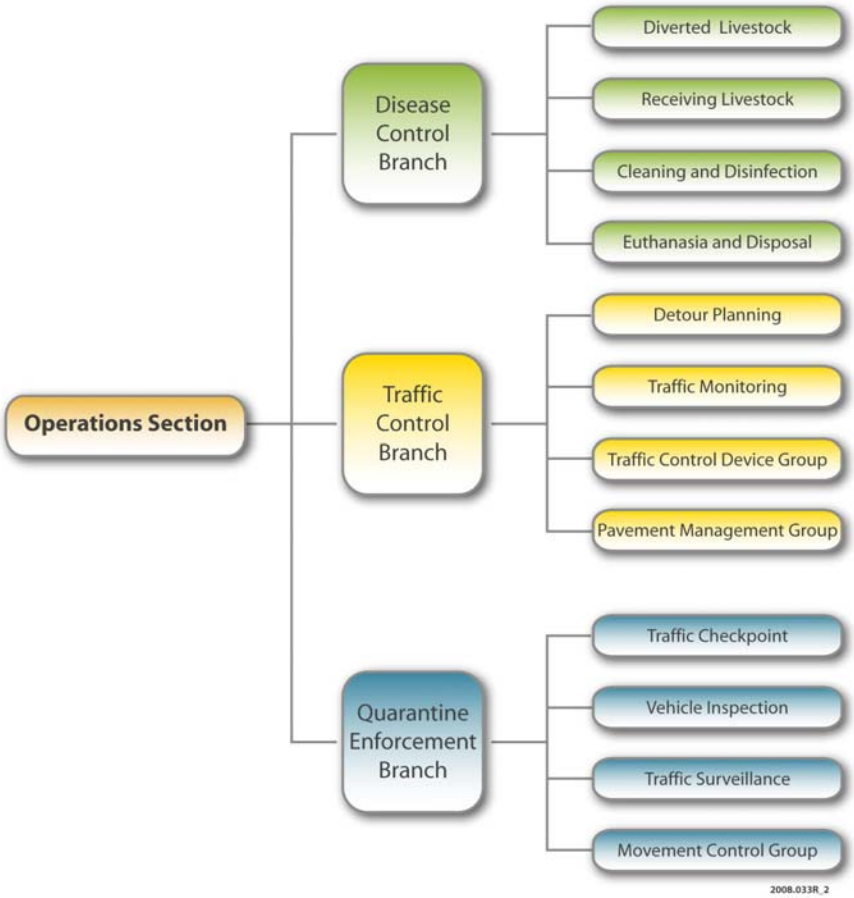

Figure 3-2. Organization of Operation Section for foreign animal disease response.

- Supplying, installing, and maintaining signs, barricades, flashing lights, and other traffic control devices; and
- Maintaining the road surface of detour routes to ensure that critical paths remain open and usable.

The Quarantine Enforcement Branch would be responsible for enforcing movement restrictions, which might include the following:

- Staffing traffic check-points,
- Inspecting vehicles, and
- Providing surveillance of the quarantine boundary.

The Disease Control Branch will most likely be staffed with state-level responders, such as veterinarians and Department of Agriculture personnel, who are familiar with specific diseases and with their control and management. However, in many cases, local staff will be needed to identify locations to house diverted animals and assist in cleaning and disinfection tasks. The county engineer, county public works director, or a state DOT area engineer who is familiar with the roads in the area could lead the Traffic Control Branch, which is usually staffed with a combination of local public works and state DOT maintenance crews. The Enforcement Branch may be led by the local sheriff and supported by state police and the National Guard. All three branches will most likely be supported by volunteers, so training before and during the emergency will be necessary.

During emergency planning and before a specific incident ever occurs, there are tasks that should be considered by representatives of the Operations Section. While the specific nature and location of a disease outbreak cannot be known in advance, gathering and maintaining information on routes can increase the efficiency of detour planning when it is needed. Types of information that may be useful in detour planning include the following:

- Approximate Average Daily Traffic (ADT) volumes on country roads;
- Percentage of heavy trucks on roads in the county, which may help in determining the ability of local roads being considered for use as detour routes to handle excessive heavy truck traffic;
- Allowable loads for bridges and for bridge height and width restrictions;
- Identification of agricultural routes [to and from the county's big producers, where livestock or livestock products (e.g., milk) are frequently delivered or picked up];
- Location of hospitals, schools, community centers, grocery stores, and other places that require open routes;
- Roadway characteristics that help determine the types of vehicles that can safely use the route as a detour are width, presence of shoulders, and pavement quality;
- Proximity to agricultural producers (routes close to potentially infected animals or animals susceptible to disease are less desirable for use as detours); and
- Locations of all producers in the county (from hobby farmers/ranchers to major producers).

Planning detours, identifying animal and vehicle holding areas, and prioritizing road blocks, disinfection stations, and traffic checkpoints can all be done in the planning stages with coordination of law enforcement officers, DOT and county public works officials, and animal and human health specialists. While certain elements of the plan may need to be changed to accommodate the circumstances of a specific emergency, general plans can be made ahead of time so that they can be put into action right away.

3.2 Resource Management

One of the challenges of emergency response in rural areas is limited resources and workers. Although these areas often have a great deal of human capital, they tend to lack material and financial resources. In small, close-knit communities, local responders are likely to have personal relationships with their community members, making borrowing private resources for the response effort easier. Local farmers/ranchers and shops may have a variety of useful items on hand, including hay bales, gates, fencing, earth-moving equipment, tarps, basins, tubs, disinfectants, and appropriate safety equipment such as rubber gloves. Smaller communities are also more likely to provide emergency volunteers with meals, accommodations, and clothing.

As part of the planning process for incidents, a list of potential local resources to use for traffic control should be compiled. Standard resources, such as detour signs, cones, barricades, barrels, and changeable message signs are important. Table 3-1 shows an example of a resource list created in the planning process.

In addition to identifying local resources, the county may need to consider other ways to fill resource gaps, such as through emergency assistance compacts with other counties or cities, grants for equipment or supplies, or other means. A plan should be established for locating resources needed to establish safe and effective traffic control around a 3- to 6-mi (5- to 10-km) quarantine radius.

Information on the availability of the resources should also be assembled and maintained. The information compiled should include the location and quantity of supplies, equipment,

Table 3-1. Typical resources list created in planning process for agricultural emergency response.

Signs	Vehicles	Communications Equipment
road closed signs	police cruisers	radios
detour signs	contractor trucks with lights	spare batteries
congestion ahead signs	utility trucks with lights	
stop/slow paddles	DOT/public works trucks with lights	
electronic message signs	dump trucks	
storefront marquee signs	front loaders	
biohazard signs	vans or buses	
arrow boards		
Barricades	**Safety Equipment**	
standard barricade signs	reflective vests	
cones/barrels	flares	
hay bales	flashlights, batteries	
orange construction fencing	reflective paint	
portable gates	reflective tape	
	personal protective equipment (as required by OSHA standards)	

signs, vehicles, and other resources, as well as contact information and instructions for obtaining the resources. Table 3-2 demonstrates a method for tracking available resources. A separate sheet may be developed and maintained for each resource agency or owner. Resource agencies or owners might include state DOT maintenance facilities, county maintenance facilities, utility companies, highway contractors, and any other local business or agency with signs, vehicles with flashing lights, sign installation equipment, variable message boards, or barricades.

Table 3-2. Example of a traffic control resource list.

County:	Johnson	Date: 7/1/2006	
Owner:	Springfield State DOT Maintenance Building	**Item**	**Quantity**
		Signs	
Contact Name:	Jim Jones, Maintenance Supervisor	Stop	20
		Stop ahead	5
Phone Numbers:	Office: 123-456-7890 Cell: 123-456-0987 After 4 pm: 123-456-7089 Radio Call No.: Main 1	Road closed	10
		Detour	20
		Arrows	20
		US / State route number signs	various
		Road name signs	various
		Sign posts	50
Address:	111 County Road R.	Biohazard signs	
		Variable message signs	2
		ITS message boards	
Additional Information:	If building doors are locked and maintenance staff is unavailable, extra key is located inside door of west shed. Maintenance supervisor keeps all vehicle keys locked after hours. If needed, call cell or after hours number.	Flashers	
		Barricades	
		Portable barricades	
		Gates	10
		Hay bales	
		Vehicles	
		Police cruisers	
		Trucks with sign capacity, installation equipment	2
		Trucks with towing/hauling capacity	2
		Other vehicles with flashers/rotating lights	2
		Maps	
		State road maps	1 box
		County road maps	
		Property maps	
		Land-use maps	

3.3 Communications

Many existing LEOPs contain communications plans for emergency response. In planning a response to an agricultural emergency, it is important to consider communications at and between traffic control points. While law enforcement officials will most likely be equipped to communicate with each other, others involved in setting up traffic control and working at traffic checkpoints will need to be able to communicate with the each other, as well as with the emergency operations center. For example, the Traffic Monitoring Group might need to notify the Traffic Control Device Group that because of a long traffic queue forming at a checkpoint, the warning or detour signs should be moved further upstream.

When planning for communication capabilities, the chain of command should also be considered. Each responder should be able to communicate with his or her immediate supervisor. In a unified command, responders from different agencies in parallel positions should be able to communicate with each other. For example, the public information officer (PIO) from the state Department of Agriculture should be able to communicate with the PIO from the county as well as the PIOs at USDA, FEMA, and SEMA. Arrangements for open communication may include maintaining up-to-date, published phone lists that are available to all responders, equipping all response vehicles with cell phones and two-way radios, or simply establishing regular meetings with group members and the group leader when other means of communication are unavailable.

Communication with the public is an essential part of both safe and efficient traffic control as well as effective and successful emergency response. The PIO must work with the Operations Section chief and the branch managers to keep the public informed of road closures, traffic checkpoints, and movement restrictions for livestock. Providing accurate and timely information can increase voluntary compliance and reduce confusion due to unexpected changes in traffic control. Helping drivers plan their trips in advance by providing reliable and up-to-date information can reduce delay and help contain the animal or plant disease.

3.4 Emergency Management Assistance Compacts

Because rural counties may have limited staffing and resources, emergency management assistance compacts with the private sector and with surrounding jurisdictions are often critical. Planning efforts with neighboring counties is also critical, since quarantine areas may cross county boundaries. It is important to establish compacts between agencies in the planning stages so that when an emergency occurs, means of sharing resources are already in place. It may be helpful for counties to form compacts with counties that do not share a border because a foreign animal disease may spread to neighboring counties, which would eliminate their ability to spare resources. Formal emergency management assistance compacts are typically developed jointly and signed by all community partners; such agreements describe the specific aid that will be provided or shared between jurisdictions and how the agencies that provide aid will be compensated. Many communities have existing compacts between law enforcement agencies, since mutual-aid is an important part of NIMS. These agreements can be kept as annexes to the LEOP so that they are easily accessible in an emergency.

Beyond the traditional agreements between law enforcement agencies, agreements between public works and highway departments can also be helpful for emergencies that require extensive traffic control. Private owners of resources, such as contractors, utility companies, and others who may be able to provide vehicles, manpower, barricades, and signs can also be involved in aid agreements. Making arrangements for the use of these resources and establishing a structure for reimbursement before an emergency occurs may mean that more resources are available at the earliest critical stages of the response.

3.5 Volunteers

Volunteers may help to fill emergency response roles that cannot be filled by regular employees, and in many rural areas, emergency response is led by volunteer organizations, such as a volunteer fire department. Protocols for how to coordinate and organize volunteer efforts are often described in emergency response plans, but in the case of a foreign animal or plant disease, special care must be taken to ensure volunteers are properly disinfected when entering or exiting their work site. This is especially true if the volunteers are at disinfection stations, or are handling livestock or agricultural equipment and vehicles. Volunteers should be trained on general biosecurity practices during the planning stage, prior to the occurrence of an incident. In addition to general biosafety training, volunteers should be briefed on incident-specific biosecurity requirements as soon as they are called to respond to an emergency. A brief section on simple biosecurity practices is included at the end of this guide.

3.6 Standard Operating Guidelines

The Standard Operating Guidelines (SOG) for law enforcement officials in a quarantine situation are often unclear because many jurisdictions do not have specific guidelines on the methods officers may use to enforce a quarantine. For instance, no procedure may exist to dictate how law enforcement handles the containment of an animal or plant disease that poses no direct health threat to humans. Because quarantines and other movement restrictions are rare, precedents or written policies usually do not exist to guide the officers' actions. Between the time a disease is suspected and when it is confirmed, the situation becomes even more complicated, since no threat may even exist. It is important for local law enforcement agencies to understand the authority structure in their state for issuing quarantines and movement restrictions and to develop guidelines for appropriate rules of engagement.

CHAPTER 4

Traffic Control Issues

A confirmed foreign plant or animal disease will most likely require an immediate quarantine radius of several miles. In a rural county, a 3- to 6-mi (5- to 10-km) quarantine radius could involve 10 to 35 vehicle entry and exit points along the quarantine boundary that must be barricaded or manned to control traffic. The following types of vehicles should be controlled, and each type will require different procedures at traffic control points:

- All vehicles, both agricultural and nonagricultural, entering, exiting, or passing through quarantined area;
- Vehicles transporting (legally or illegally) live-stock, poultry or produce; and
- Emergency response vehicles.

While police officers and sheriff's deputies have the most experience with law enforcement road blocks and traffic stops, they are often not aware of the proper quarantine procedures for an agricultural emergency. They may also not have adequate resources and personnel for effective traffic control on the scale necessary for a quarantine that covers over 100 mi^2 (259 km^2) and that may last 2 months or longer.

4.1 Levels of Traffic Control

This guide describes three levels of traffic control that can be used in an agricultural emergency. These three levels of traffic control are:

Level 1: Traffic check points with cleaning and disinfection stations—Traffic checkpoints prevent the spread of disease by ensuring traffic is controlled and only authorized vehicles are allowed to move in or out of the quarantine area. Level 1 checkpoints are used with the added provision of a station to clean and disinfect vehicles and equipment and to disinfect individuals exiting a quarantine zone. In an agricultural emergency, the quarantine applies directly to plants or animals, but individuals and vehicles may spread the disease if disinfection efforts are not utilized.

Level 2: Traffic checkpoints—Vehicles are screened and those related to agriculture are returned to their places of origin or holding sites, or they are allowed to proceed under permit.

Level 3: Road closures—Roads are barricaded and all traffic movement is stopped.

The Level 1 and 2 traffic checkpoints require substantially more equipment and personnel than the Level 3 road closures, which will generally be the most common type of traffic control used. Generally, at least one law enforcement officer will be needed at each traffic checkpoint. Locations for traffic checkpoints will be determined based on a priority scale that considers traffic

Table 4-1. Traffic control point priority scoring.

If road is paved	1 priority point
If road is unpaved	0 priority points
If ADT > 400 veh/day	1 priority point
If ADT < 400 veh/day	0 priority points
If Agricultural movement is > 50% of ADT	1 priority point
If Agricultural movement is < 50% of ADT	0 priority points
If road is primary or only route to essential services	1 priority point
If there are alternate routes available	0 priority points

NOTE: ADT = average daily traffic volume.

Table 4-2. Priority scoring examples.

Paved or unpaved roads with low ADT, low agricultural movement, and alternate routes to essential services available, Scores 0 or 1 ⇨ Road Closure (No Access)

Paved road with ADT > 400 veh/day, low agricultural movement and primary or only road to essential services, Score 3 ⇨ Traffic Check Point

Unpaved road with low volumes, significant agricultural movement and only route to essential services, Score 2 ⇨ Traffic Check Point

Paved road with ADT >400 veh/day, significant agricultural movement, and only route to essential services, Score 4 ⇨ Traffic Check Point with Cleaning and Disinfection Station

volumes, road surface (paved or unpaved), agricultural movement, and access to essential services.

The phases of an agricultural emergency were discussed in Chapter 2. Phase 1 is the planning phase prior to any suspected, observed, or known disease. Phase 2 of an agricultural emergency begins as soon as symptoms of a disease are reported, and it ends when a positive diagnosis is received. During Phase 2, state and local emergency operations plans should be initiated, the boundaries of the quarantine area should be determined, and the location and level of traffic control for each road crossed by the quarantine boundary should be identified.

Table 4-1 shows a priority scale for determining the appropriate level of traffic control to be used at each location where a road crosses the quarantine boundary.

Table 4-2 gives some examples of how to use priority scoring to determine appropriate traffic control. The number of Level-1 or Level-2 traffic control points should depend on the resources available to the responsible agency. In some cases, a road closure may be upgraded to a traffic checkpoint as more resources or personnel become available.

Table 4-2 lists specific volumes for the ADT and agricultural movement ratings. The local public works director may not have traffic volume counts on every county road, but he or she may be able to assess the level of traffic and agricultural vehicle movements on each county road. (Over 80 percent of rural roads have ADTs < 400 veh/day.) For state roads, the district or regional state DOT maintenance manager will normally have current traffic volume counts.

4.2 Hypothetical Scenario

To illustrate the use of the route priority rating scale, assume that a FAD is suspected on a small farm about 6 mi (10 km) southeast of Linn, a rural town with a population of 1,400.

In this scenario, a FADD has examined animals at this farm, and determined with a high likelihood that the animals are suffering from a FAD. Samples have been sent to a USDA authorized laboratory, but test results are not yet available. The responding FADD has quarantined the suspected site, and state epidemiologists have determined that a 6-mi (10-km) quarantine area around this farm will be necessary if the test results are positive. The quarantine area, shown in Figures 4-1 and 4-2, encompasses the small towns of Linn, Judge, Potts, and Rich Fountain. Figures 4-1 and 4-2 show all 27 sites where a road crosses the potential quarantine boundary.

At this point, a working group within the Operations Section should determine the level of traffic control needed at each site where a road intersects the quarantine boundary. Normally, this working group would consist of the local sheriff, the county public works director, the area DOT engineer, a veterinarian, and the head of the State Highway Patrol's area troop.

Table 4-3 shows the priority rating of each of the 27 sites on the quarantine boundary. For example, the first site is "SR-DD." The following priority factors were used by the working group in their determination:

- Paved road,
- ADT > 400 veh/day,
- Nonagricultural route, and
- Alternative routes are available.

The priority rating for SR-DD was "2," which was determined by assigning one point for a paved road and one point for ADT > 400 veh/day.

All 27 sites were rated using a similar method of determination. Using local knowledge, the working group was able to reduce the number of sites at which traffic control was needed. For example, Route CR-310 crosses the boundary three times, creating Sites 7, 8, and 9. Because this route does not continue farther into the quarantine area, the working group was able to eliminate traffic control at these three sites. Site 10 is blocked south of the CR-310 junction to ensure that vehicles on CR-310 cannot travel into the quarantine area. In addition, some traffic control points were very close together, which made it possible to combine the traffic control points. For example, Sites 11 and 12 were combined, and the traffic control point on SR-89 was placed south of the SR-J intersection to control both routes.

The traffic control established at specific sites depends on the available resources. In the scenario described above, two sites received a priority rating of "4." Both of these sites were controlled by a traffic checkpoint with a cleaning and disinfection (C & D) station. The C & D stations were necessary because they were located on routes to essential services that also served heavy agricultural traffic.

Five sites received a rating of "3." Site 12 was combined with Site 11, reducing the number of sites, with a rating of "3" from five to four. Traffic checkpoints were specified for each of these four sites to allow nonagricultural traffic to go into or across the quarantine area.

The number of sites allowing access depends upon the resources available to a local agency. The seven sites with ratings of "3" or "4" were identified as a priority for traffic control. Many counties would not have the resources to establish traffic checkpoints or cleaning and disinfection stations at the additional four sites with ratings of "2." However, Site 20 contains a route that is the only access point into an area. Thus, in order to connect farms on this road to necessary services, a traffic checkpoint was established at Site 20. The sites with "2," "1," or "0" rating all required road closures with no access. A total of 15 sites were closed.

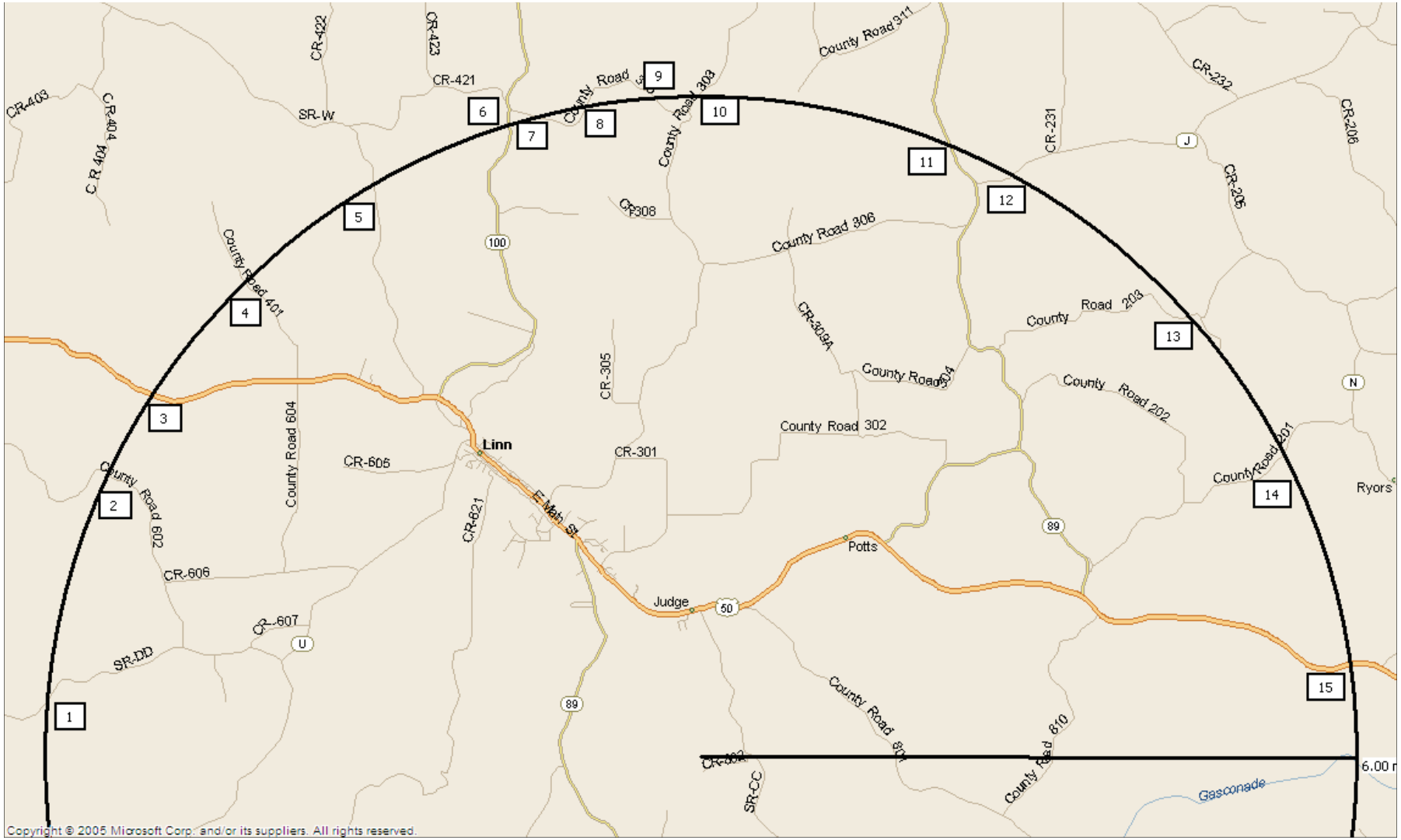

Figure 4-1. North end of quarantine area (example only for illustrative purposes).

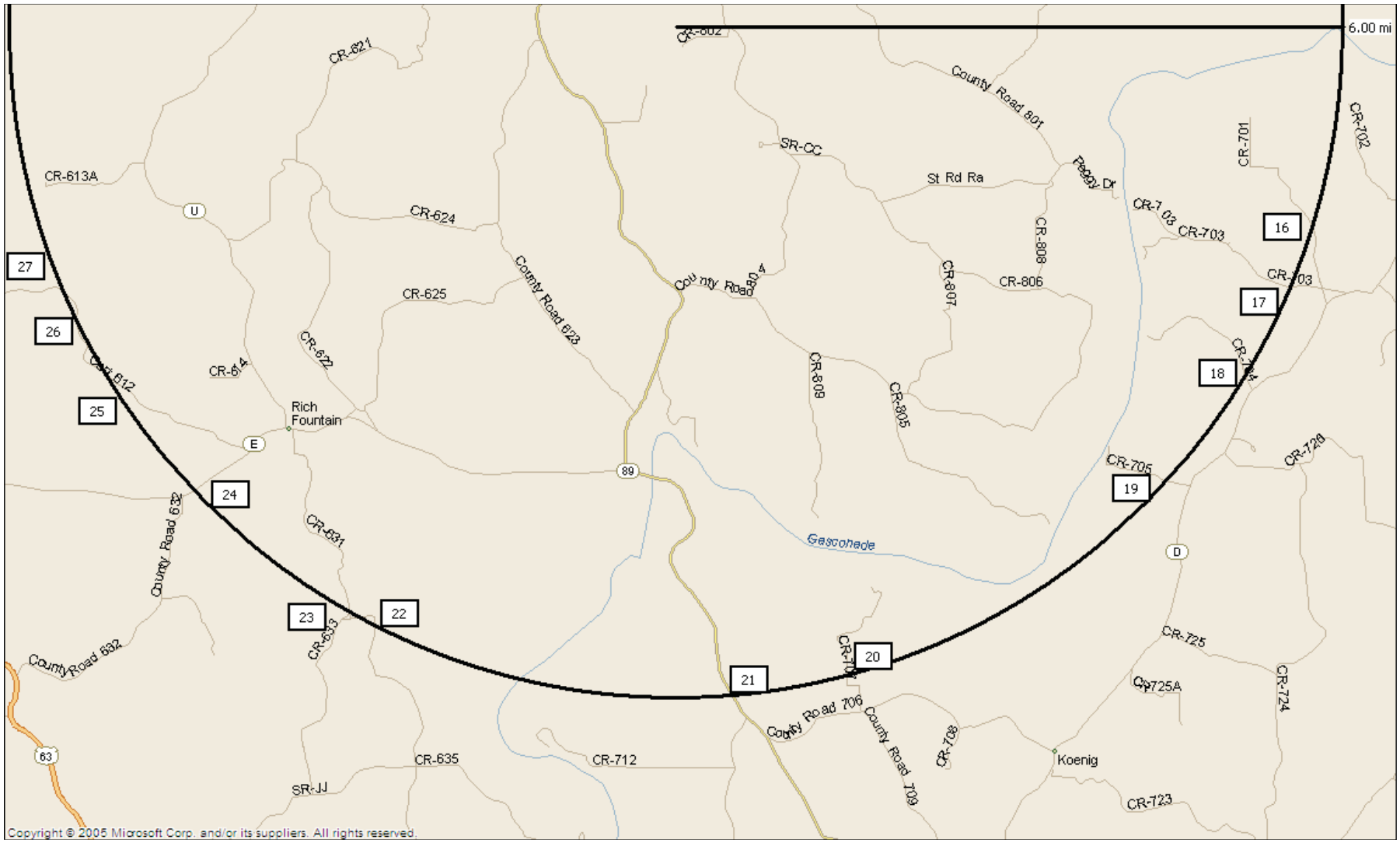

Figure 4-2. South end of quarantine area (example only for illustrative purposes).

Table 4-3. Hypothetical scenario, traffic control priority.

Site no.	Route	Priority factors	Priority rating	Traffic control	Notes
1	SR-DD	Paved, ADT > 400, nonagricultural, alternates available	2	Road Closure	
2	CR-602	Unpaved, ADT < 400, agricultural, alternates available	1	Road Closure	
3	US-50(W)	Paved, ADT > 400, nonagricultural, primary route to essential services	3	Traffic Check Point	Detour traffic to alternate routes north and south of US-50
4	CR-401	Unpaved, ADT < 400, agricultural, alternates available	1	Road Closure	
5	SR-W	Paved, ADT > 400, nonagricultural, alternates available	2	Road Closure	
6	SR-100	Paved, ADT > 400, agricultural, alternates available	3	Traffic Check Point	
7	CR-310	Unpaved, ADT < 400, agricultural, alternates available	1	None Required	
8	CR-310	Unpaved, ADT < 400, agricultural, alternates available	1	None Required	
9	CR-310	Unpaved, ADT < 400, agricultural, alternates available	1	None Required	
10	CR-303	Unpaved, ADT < 400, agricultural, alternates available	1	Road Closure	Block south of CR-310
11	SR-89	Paved, ADT > 400, agricultural, primary route to essential services	4	Traffic Check Point with Cleaning and Disinfection Station	Locate checkpoint south of SR-J.
12	SR-J	Paved, ADT > 400, agricultural, alternates available	3	(see notes)	Combine w/ Checkpoint 11
13	CR-203	Unpaved, ADT < 400, agricultural, alternates available	1	Road Closure	
14	CR-201	Unpaved, ADT < 400, agricultural, alternates available	1	Road Closure	
15	US-50(E)	Paved, ADT > 400, nonagricultural, primary route to essential services	3	Traffic Check Point	Detour traffic to alternate routes north and south of US-50
16	CR-701	Unpaved, ADT < 400, nonagricultural, alternates available	0	Road Closure	
17	CR-703	Unpaved, ADT < 400, nonagricultural, alternates available	0	Road Closure	
18	CR-704	Unpaved, ADT < 400, agricultural, alternates available	1	Road Closure	
19	CR-705	Unpaved, ADT < 400, nonagricultural, alternates available	0	Road Closure	
20	CR-707	Unpaved, ADT < 400, agricultural, primary route to essential services	2	Traffic Check Point	
21	SR-89(S)	Paved, ADT > 400, nonagricultural, primary route to essential services	3	Traffic Check Point	
22	CR-634	Unpaved, ADT < 400, agricultural, alternates available	1	Road Closure	
23	CR-631, CR-633	Unpaved, ADT > 400, agricultural, alternates available	2	Road Closure	
24	SR-E	Paved, ADT > 400, agricultural, primary route to essential services	4	Traffic Check Point with Cleaning and Disinfection Station	
25	CR-612	Unpaved, ADT < 400, nonagricultural, alternates available	0	Road Closure	
26	CR-612	Unpaved, ADT < 400, nonagricultural, alternates available	0	Road Closure	
27	CR-612	Unpaved, ADT < 400, nonagricultural, alternates available	0	Road Closure	

4.3 Detours

After determining the quarantine area and the traffic control levels of specific sites, detour routes should be identified. The two primary purposes of specifying detour routes are:

1. To reduce the volume of traffic traveling through the quarantine area.
2. To guide motorists at road closures to alternate routes.

The traffic control strategy should guide motorists to alternate routes that circumvent the quarantine area or to traffic checkpoints where motorists can enter the quarantine area after passing inspection. Detours for through traffic on major state routes crossing the quarantine area should be established to reduce through traffic in the quarantine area. For example, traffic on U.S. Route 50 should be detoured to major routes north and south of the quarantine area.

4.4 Public Information

Once a quarantine order is issued, the PIO, who is a member of the Command Staff, will initiate the county's public information and media plan to inform the local community of the existence and location of traffic control points and the associated alternate routes. The county public works staff and the state DOT personnel should be consulted when alternative routes are created.

In addition, the public should be notified of the possibility of delays at traffic checkpoints, and of the procedures for exiting the quarantine area. Methods for informing the community include public announcements via radio, television, websites, newspapers, and signage announcing the traffic control points. Any public notification should be coordinated with state or federal PIOs attached to area commands. Local responders should identify and make use of information prepared in advance or press releases that could be used in responding to an FAD. Public notification will help citizens stay informed of and understand the effects of the quarantine on traffic.

Response workers should be trained to refer any press or other project-specific inquiries to the PIO. In addition, workers at traffic checkpoints should be able to provide motorists with maps and necessary information about the incident.

4.5 Traffic Control Plans

Figures 4-3 and 4-4 show the traffic controls recommended for Road Closures. The *Manual On Uniform Traffic Control Devices (MUTCD)* (*4*) states that for traffic incidents of an emergency nature, temporary traffic control (TTC) devices on hand may be used for the initial response as long as they themselves do not create unnecessary hazards. The MUTCD also states that, if temporary devices such as flares are used, they should be replaced by devices that are more permanent as soon as possible.

During an agricultural emergency, available materials, such as hay bales, old tires, gates, or vehicles with flashing lights, could be used as barricades in the early part of a response. However, these minimal traffic control measures should be replaced with standard devices as soon as they become available. In addition, the traffic control devices should not create unnecessary hazards. For example, vehicles should not be placed across a road where a driver who does not stop has no recourse but to run into the side of the vehicle. Traffic control devices used at night should be lighted or retroreflective.

Figure 4-3 shows the minimal signing recommended for a road closure. A Type III barricade blocks the road, but other materials (as specified above) may be used until a sufficient number

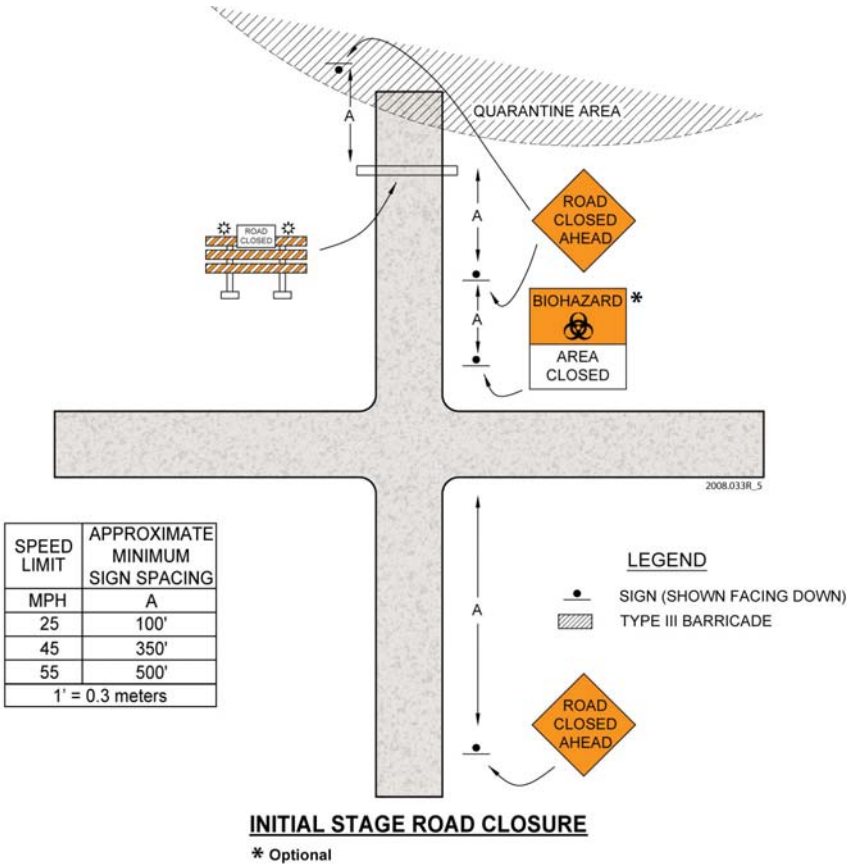

Figure 4-3. Road closure traffic control—initial stage.

of standard barricades are available. Table 4-4 shows the traffic control notes for the road closure. These notes discuss the location, personnel, and equipment required at the closure. These notes are patterned after the notes in Nebraska's Traffic Control Monograph (*5*).

Non-law-enforcement personnel should not attempt to forcibly stop vehicles from proceeding into or out of the quarantine area. Instead, they should document license plates and descriptions of vehicles traveling through the road closure, and report the violation to their branch chief so enforcement officials can respond. If frequent violations of the road closure occur, law-enforcement personnel should be stationed at the location. Many law enforcement organizations have pre-existing standard operating procedures or guidance for stopping and rerouting traffic, and these procedures should be applied. The goal of traffic control at road closures is to ensure that vehicles do not cross the traffic control either into or out of the quarantine area.

Traffic control for traffic check points are shown in Figures 4-5 and 4-6. In the initial stage of the response, a traffic checkpoint may be established with a single law enforcement officer and police cruiser. The cruiser lights and signs can serve as advance warning, and the officer can stop vehicles with hand signals. Portable stop signs should be added as soon as possible. Biohazard signs should be used if available. Table 4-5 shows traffic control notes for traffic checkpoints.

When additional personnel and equipment are available, the traffic controls should be augmented as shown in Figure 4-6. Advance signs should be placed 100 to 500 ft (30 to 150 m) before the traffic stop. Public works employees and their vehicles can be used to install traffic control devices and to supplement advance-warning signs if long queues develop.

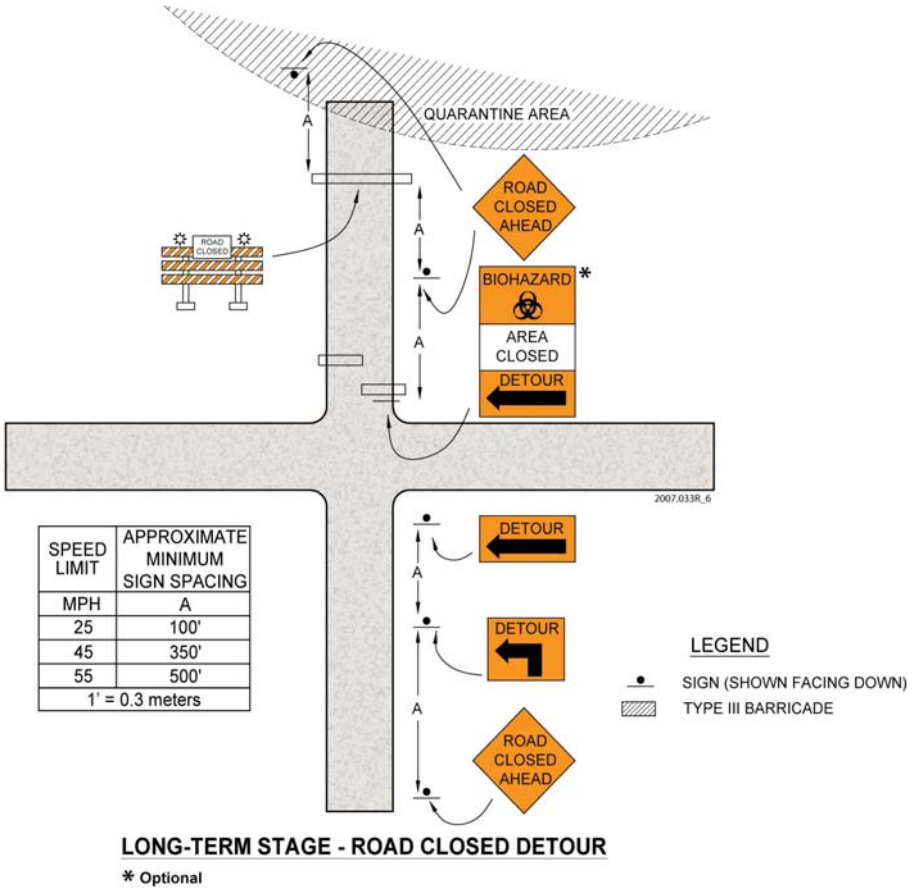

Figure 4-4. Road closure traffic control—long term stage.

The goal of traffic control at traffic checkpoints is to prevent the spread of the disease by ensuring vehicular, animal, and equipment traffic is controlled and disinfected if necessary and that no at-risk animals are allowed to move in or out of the quarantine area. Some states have permit procedures that are employed to direct transported animals to holding areas or back to their point of origin. Decisions about issuing permits are normally made by State Department of Agriculture personnel.

Quarantine entrance and exit control is a crucial part of disease containment and response management, and it provides security for residents living within the quarantine area. Only authorized persons should be allowed to enter the quarantine zone. Personnel staffing the traffic checkpoints and the access corridor should be provided lists of responders and residents cleared for access. These lists should be compiled in the Planning Section.

A state or federally issued form of identification should be required to verify the identification of anyone desiring entry into the quarantine area. After the initial identity verification, a temporary access card, or other traceable indicator of approved access, could be issued to responders and residents traveling regularly through the access corridor. Depending on the security level required, such indicators can range from simple color-coded dashboard cards to computer scanned bar-coded access cards. As responders and residents exit or enter a quarantine zone, their identities must be verified, and their names and time of entry or exit should be documented. Any unusual circumstances associated with an entry or access into the quarantine area should be documented, as well.

Traffic control for traffic check points with cleaning and disinfection stations are shown in Figure 4-7. Since time will be needed to establish the cleaning and disinfection station, no

Table 4-4. Traffic control notes for Level 3—road closure (no access permitted).

Location: Road closures should be located near intersections. There should be good sight distance to the road closures at least equal to the braking distance at the speed limit of the roadway.

Personnel: Generally at least one person should be located near a road closure to hand out information sheets and to describe detour routes. A law enforcement officer should patrol road closures and respond quickly if needed at a specific site. Possible law enforcement personnel who could be utilized include: local sheriff's staff, state patrol troopers, local police, game and parks officers, and military police from the national guard.

Non-law enforcement personnel who can be utilized to staff road closures include county road department staff, state DOT personnel, National Guard, and State conservation staff. Counties can also utilize citizen corps or other volunteer organizations if approved by the county attorney.

Non-law enforcement personnel should record any attempt to breech road closures and contact law enforcement.

Equipment: The following equipment should be provided for each road closure:

- **Barricades—**standard Type III barricades supplemented with plastic fence are preferred, but other available materials such as hay bales, gates, or regular fence can be substituted. The road should be barricaded from right-of-way line to right-of-way line.
- **Signage—**at least one advance warning sign is required on each side of the road block. The advance sign should be 100 to 500 ft (30 to 150 m) in advance of the road closure as shown in Figures 4-3 and 4-4. Detour routing signs should be installed as soon as possible. Biohazard signs should be used when available.
- **Personal protective equipment (PPE)—**All personnel working at road closures, including law enforcement personnel, should wear safety apparel meeting the requirements of ISEA "American National Standard for High-Visibility Apparel," (*6*) and labeled as meeting the standard performance for Class 2 risk exposure. In some situations, especially at night, personnel may need apparel meeting the performance standard for Class 3 risk exposure. Other PPE may be required at road closures depending on the specific disease including respiratory protection, as well as eye, face, and head protection in accordance with OSHA regulations in Section 1910.32d. (*7*)
- **Shelter**—Personnel at road closures may use work or personal vehicles for shelter.
- **Lighting—**Warning lights may be mounted on barricades and warning signs used for road closures. Vehicles used in traffic control near road closures should display high-intensity rotating, flashing, oscillating, or strobe lights. Road barricades that are not retroreflective should be well-lit at night.
- **Communications—**Each person stationed at road closures should be provided with a means of communication with the emergency operations center (EOC). This communication method may include the use of portable radios, pagers, cellar phones, or citizen-band radios.
- **Portable sanitary facilities—**These should be provided for personnel stationed at road closures.
- **Maps—**personnel stationed at road closures should have maps showing the quarantined area with detours highlighted.

reduced or initial stage traffic control plan is shown. Normally, the traffic checkpoint would be established first, and then cleaning and disinfection stations for vehicles and individuals would be established. Diversion points are used for u-turns, as storage for vehicles awaiting disinfection, and for vehicles used only in the quarantined area by responders. Responders may park contaminated vehicles and proceed through individual cleaning and disinfection stations out of the quarantined area. This procedure reduces the number of vehicles that must be disinfected.

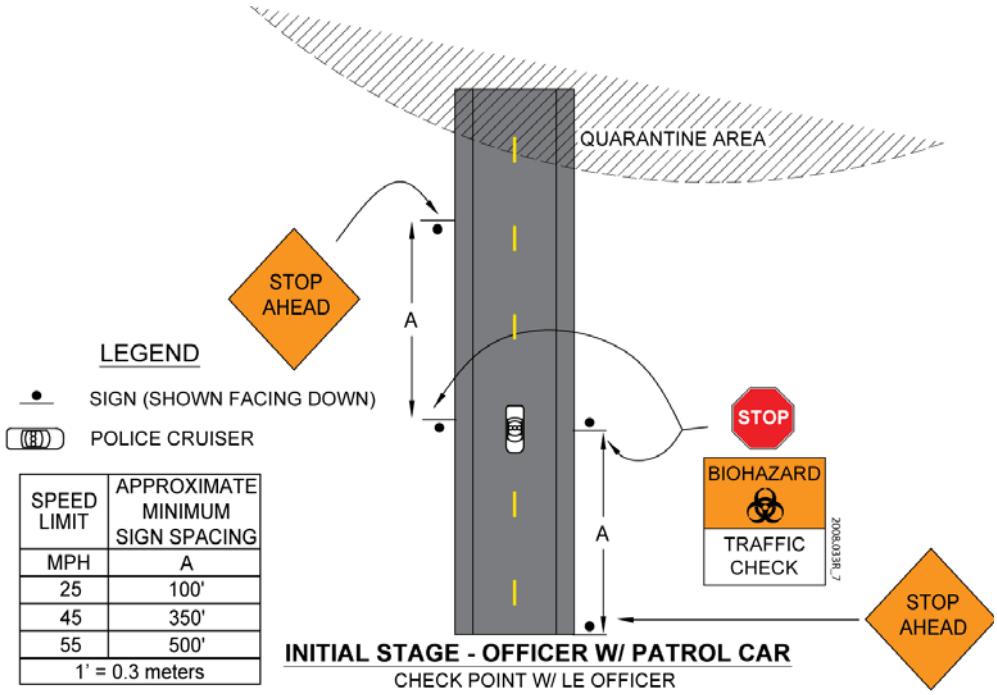

Figure 4-5. Traffic check point traffic control—initial stage.

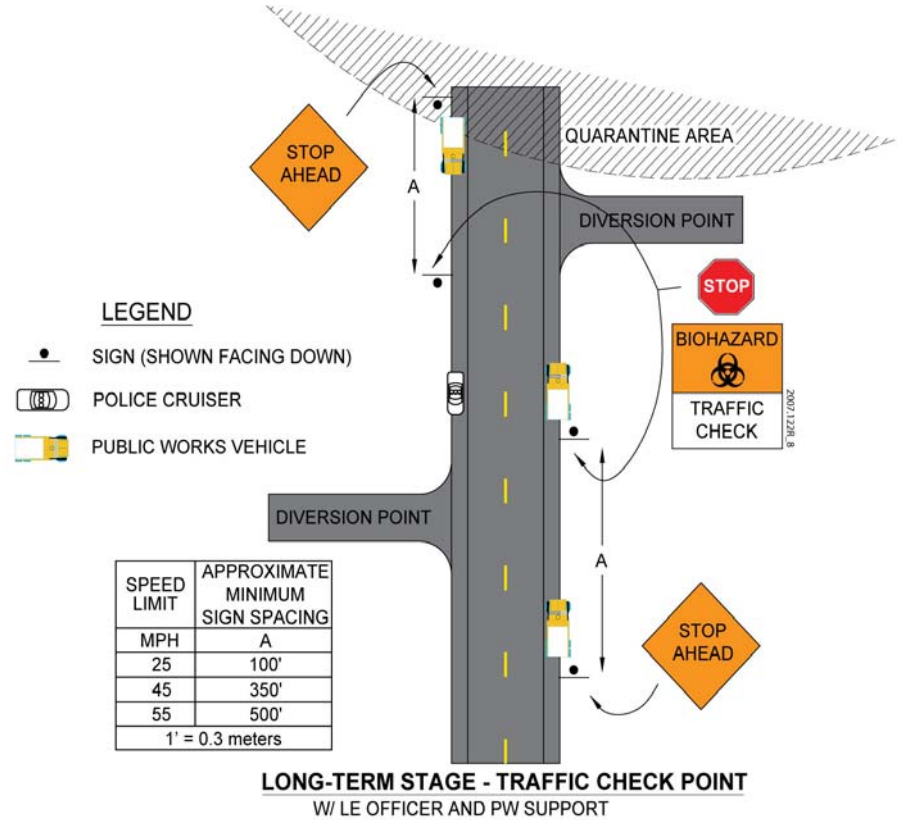

Figure 4-6. Traffic check point traffic control—long term stage.

Table 4-5. Traffic control notes for Level 2—traffic check point.

Location:	Check points should be located on road sections that are relatively straight and flat and well removed from potential sight restrictions so that queues of stopped vehicles are visible from either approach to the traffic check point. Diversion points should be available so that diverted traffic can turn around or wait for further instructions.
Personnel:	At least one law-enforcement officer with a cruiser should be stationed at each traffic check point. On roads with ADTs of 1,000 veh/day or more, two or more officers may be needed to ensure that delays are not excessive. Possible law-enforcement personnel include: local sheriff's staff, state patrol troopers, local police, game and parks officers, and military police from the National Guard. In the initial stage, a police cruiser with high-intensity rotating, flashing, oscillating, or strobe lights may be used for advance warning of a traffic check point. For long-term operations, if available, two or more non-law-enforcement personnel with vehicles should be stationed at traffic check points to assist officers and to upgrade traffic control devices. Non-law-enforcement personnel who can be utilized include county road department staff, state DOT personnel, National Guard, and state conservation staff. Counties can also utilize citizen corps or other volunteer organizations if approved by the county attorney.
Equipment:	The following equipment should be provided for each traffic check point: • **Signage—**After initial stages, at least one advance warning sign is required for each direction of travel. The advance sign should be 100 to 500 ft (30 to 150 m) in advance of the traffic stop as shown in Figure 4-6. Biohazard signs should be used when available. • **Personal protective equipment (PPE)—**All personnel working at road closures, including law enforcement personnel, should wear safety apparel meeting the requirements of ISEA "American National Standard for High-visibility Apparel," (6) and labeled as meeting the standard performance for Class 2 risk exposure. In some situations, especially at night, personnel may need apparel meeting the performance standard for Class 3 risk exposure. Other PPE may be required at traffic check points depending on the specific disease including respiratory protection as well as eye, face, and head protection in accordance with OSHA regulations in Section 1910.32d. (7) • **Shelter—**Personnel at traffic check points should be provided with shelter from temperature extremes, winds, and precipitation. • **Lighting—**Street or portable lighting should be provided near traffic stops. Warning lights may be mounted on warning signs used in advance of traffic stops. Vehicles used in traffic control near traffic check points should display high-intensity rotating, flashing, oscillating, or strobe lights. Police cruisers should also display flashing lights. • **Communications—**Each law enforcement officer stationed at road closures should be provided with a means of communication with the Emergency Operations Center (EOC). This communications method may include the use of portable radios, pagers, cellular phones or citizen band radios. • **Portable sanitary facilities—**These should be provided for personnel stationed at traffic check points. • **Maps—**personnel stationed at traffic check points should have maps showing the quarantined area with detours highlighted.

The following procedures for cleaning and disinfection stations are taken from Monograph No. 4 (*8*) from the Nebraska Department of Agriculture. Traffic control personnel may be responsible for routing vehicles to cleaning and disinfection stations but will not normally be involved in cleaning and disinfection activities.

When a vehicle or heavy equipment approaches the access corridor from inside the quarantine zone, it will be inspected for external sources of contamination (e.g., manure, mud, soil, bedding, etc.). If the vehicle is grossly contaminated, it will be turned away and the occupants will be directed to return to the place where it became contaminated for decontamination to remove the gross contamination. Disinfectants do not work on organic material.

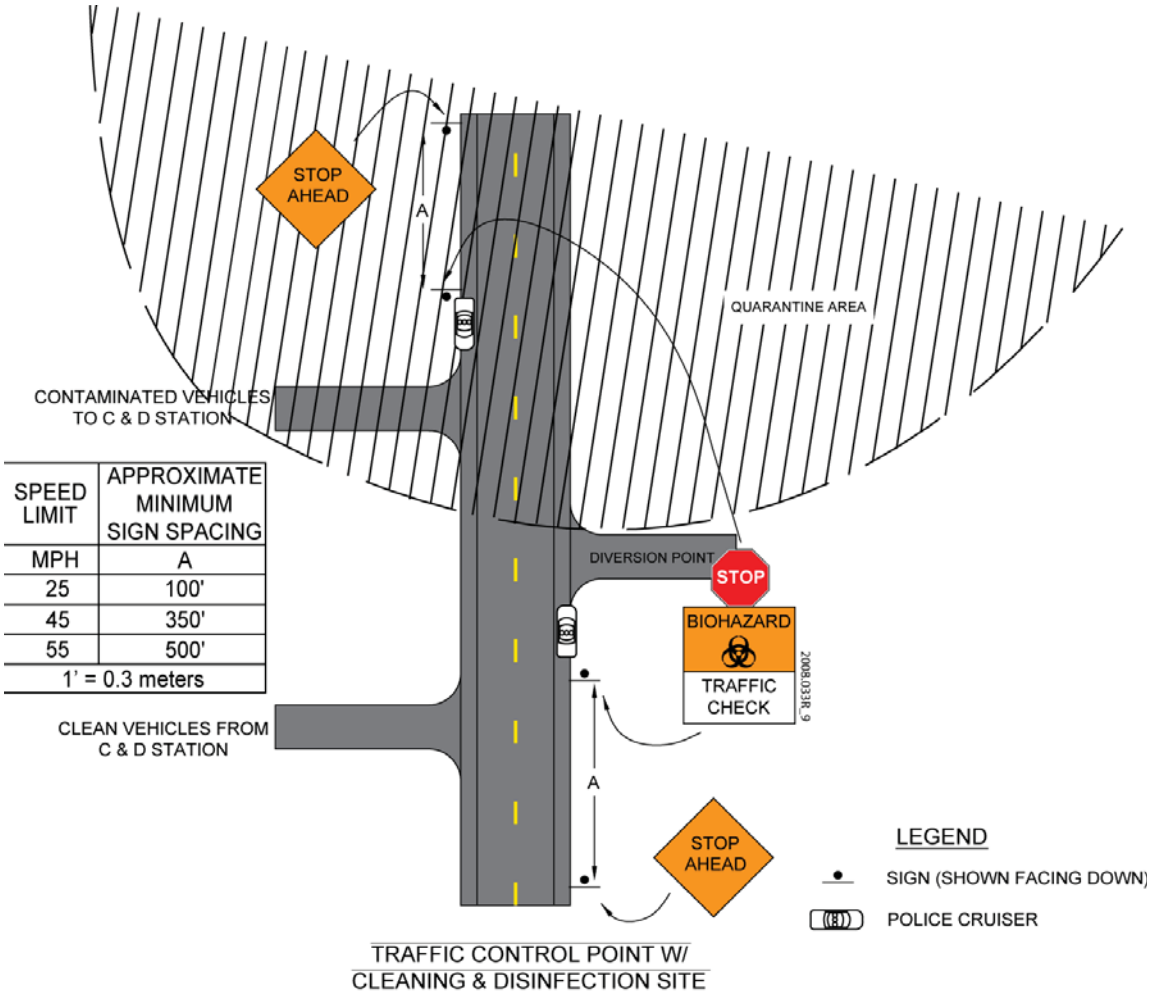

Figure 4-7. Traffic control for traffic checkpoint with cleaning and disinfection station.

If the decontamination and disinfection personnel deem that the vehicle is free enough of contamination to enter the decontamination and disinfection area, it will be driven into the area. At this time, the occupants will be asked to move to an adjacent staging area while the vehicle is decontaminated and disinfected. After the exterior of the vehicle or heavy equipment has been decontaminated and disinfected, its interior will be inspected for contamination. If necessary, the interior will be decontaminated and disinfected as practical. If the interior or exterior cannot be decontaminated or disinfected to the level required, the vehicle will not be allowed to pass through the access corridor. After the interior and exterior have been decontaminated and disinfected, the vehicle will be moved to a holding area to allow sufficient contact time for the disinfectant to be effective. During this time, the vehicle will be monitored to make sure it does not dry off. If areas are drying, they will be sprayed with disinfectant using handheld sprayers.

While the vehicle is being decontaminated and disinfected, the occupants will be inspected. The responding lead veterinarian will have developed an exit decontamination and disinfection procedure for residents leaving infected premises, and for any possessions or tools they plan to bring out of the quarantine zone. The occupants will be questioned about their implementation of the lead veterinarian's plan. Boot washes will be available if supplemental disinfection is required. If the occupants

have not implemented the lead veterinarian's plan, they will not be allowed to pass through the access corridor until they have followed the exit plan developed by the lead veterinarian.

Traffic control notes for traffic check points with cleaning and disinfection stations are shown in Table 4-6.

Table 4-6. Traffic control notes for Level 1—traffic check point with cleaning and disinfection station.

Location:	Cleaning and disinfection stations should be located in areas away from moving traffic. Check points should be located on either side of the cleaning and disinfection station in the middle of road sections that are relatively straight and flat so that queues of stopped vehicles are visible from either approach to the traffic check point. Diversion points should be available so that diverted traffic can turn around or wait for further instructions.
Personnel:	At least two law-enforcement officers with cruisers should be stationed at each traffic check point with a cleaning and disinfection station. On roads with ADTs of 1,000 veh/day or more, three or more officers may be needed to ensure that delays are not excessive. Possible law-enforcement personnel include: local sheriff's staff, State patrol troopers, local police, game and parks officers, and military police from the National Guard. If available, two or more non-law-enforcement personnel with vehicles should be stationed at traffic check points to assist officers and to upgrade traffic control devices. Additional personnel will be needed to operate the cleaning and disinfection station. Non-law-enforcement personnel who can be utilized include county road departments, state DOT personnel, National Guard, and state conservation staff. Counties can also utilize citizen corps or other volunteer organizations if approved by the county attorney.
Equipment:	The following equipment should be provided for each traffic check point with a cleaning and disinfection station: • **Signage—**At least one advance warning sign is required for each direction of travel. The advance sign should be 100 to 500 ft (30 to 150 m) in advance of the traffic stop as shown in Figure 4-7. Biohazard signs should be used when available. • **Personal protective equipment (PPE)—**All personnel working at traffic check points, including law enforcement personnel, should wear safety apparel meeting the requirements of ISEA "American National Standard for High-visibility Apparel," (6) and labeled as meeting the standard performance for Class 2 risk exposure. In some situations, especially at night, personnel may need apparel meeting the performance standard for Class 3 risk exposure. Other PPE may be required at traffic check points depending on the specific disease including respiratory protection as well as eye, face, and head protection in accordance with OSHA regulations in Section 1910.32d. (7) • **Shelter—**Personnel at traffic check points should be provided with shelter from temperature extremes, wind, and precipitation. • **Lighting—**Street or portable lighting should be provided near traffic stops. Warning lights may be mounted on warning signs used in advance of traffic stops. Vehicles used in traffic control near traffic check points should display high-intensity rotating, flashing, oscillating, or strobe lights. Police cruisers should also display flashing lights. • **Communications—**Each law enforcement officer stationed at a traffic check point should be provided with a means of communication with the EOC. This communication method may include the use of portable radios, pagers, cellular phones, or citizen band radios. • **Portable sanitary facilities—**These should be provided for personnel stationed at traffic check points. • **Maps—**Personnel stationed at traffic check points should have maps showing the quarantined area and with the detours highlighted.

CHAPTER 5

Conclusion

This guide is intended to help local law enforcement officials, emergency responders, and public works officials safely and effectively manage traffic control in the earliest stages of a suspected agricultural emergency with the resources immediately available in the community. The preceding chapters have provided information on the roles and responsibilities of responders, traffic control plans, resource management, and mutual-aid agreements—the fundamental elements of a successful emergency traffic control plan. Planning and coordination *before* an incident is suspected or reported minimizes the consequences of an agricultural incident if and when one takes place. Facilitating communication between all involved agencies and developing plans for resource sharing during the planning phase are especially important in rural areas where resources are limited. A response can only be as effective as its implementation plan.

Although preparing an effective response to a foreign plant or animal disease outbreak should be a top priority in all rural agricultural areas, establishing preventive measures is just as important. Refer to Sections 5.1 and 5.2 for information on biosecurity practices in agricultural areas and additional resources for developing or improving your agricultural response plan.

5.1 Recommended Biosecurity Procedures

The expression "the best offense is a good defense" not only holds true in the world of sports but also in emergency planning. Defending your county's agricultural assets against the possibility of accidental or intentional disease is just as important as preparing a response once an outbreak has occurred. A good defense includes carefully adhering to biosecurity procedures that minimize the risk of unauthorized access to plants and animals and the spread of contamination between farms, ranches, sale barns, slaughterhouses, and other producer locations.

When a foreign animal or plant disease is suspected, biosecurity becomes even more critical. The Environmental Protection Agency's Office of Compliance published a memorandum (*9*) in late 2001 regarding routine biosecurity procedures for EPA personnel visiting farms, ranches, slaughterhouses, and other facilities with livestock and poultry. While this guide focuses on the response taking place around the perimeter of the quarantine area and not on the response elements at the point of infection, many of the same biosecurity principles listed in the EPA memo apply. While those handling traffic controls will not be visiting the farm or slaughterhouse, they will be in contact with agricultural vehicles and their cargo, and similar precautions should be employed. Several of the biosecurity principles from the memo have been modified to apply to responders working at traffic checkpoints and are shown below in Table 5-1. The complete

Table 5-1. Biosecurity checklist.

- Individuals who have visited a foreign country and were exposed to or had contact with farm animals (with or without a known contagious disease) within the past 5 days should not inspect or be exposed to agricultural vehicles entering the quarantine area. In addition, clothing and shoes worn on foreign farm visits should be cleaned before use at other agricultural facilities or at traffic checkpoints.
- Thoroughly wash hands with soap and water or antibacterial wipes or gel before and after contact with agricultural vehicles or livestock. Disposable latex gloves also may be used but not as a substitute for proper hand washing.
- Park your vehicle on paved or concrete areas away from cleaning and disinfection areas and vehicle or animal holding areas to avoid contact with dirt, mud, or manure. If not possible, be certain that tires are free of dirt and debris by hosing the tires and wheel wells before leaving the premises. If this does not clean the tires adequately, take the vehicle to a nearby pressure car wash.
- Designate the interior of your vehicle as a "clean area" and keep cleaning supplies in this area.
- Designate a "dirty area" of your vehicle, such as the trunk of the car or a specified enclosed area of a truck bed for double bagged clothes or dirty equipment to be taken off site.
- Before leaving the site, clean and disinfect boots, or tightly bag boots for later cleaning. Scrub boot bottom and sides to remove all dirt and debris, then wash with disinfectant solution. Disinfectants are not effective on dirt, manure, or other organic matter.
- Clean and disinfect equipment if contaminated.
- Use disinfectants that have been registered (or exempted) by EPA for the intended use. (Generally, a 10% dilution of household bleach is recommended, but recommendation may vary with specific disease). Follow all label safety precautions and dispose of empty containers, unused disinfectant solution, and used disinfectant in accordance with label instructions.
- If nondisposable clothing is soiled with manure, blood, milk, or other animal secretions or if there has been close contact with livestock (actual handling or walking where animals were within reach), double bag clothing for later cleaning.

memo can be found at http://www.epa.gov/compliance/resources/policies/monitoring/inspection/biosecuritymemo.pdf.

5.2 Additional Resources

The websites shown in Table 5-2 provide links to national response documents, presidential directives, and trainings. State emergency response plans can often be found at the state emergency

Table 5-2. Additional resources websites.

Full text of the Presidential Directives can be found at at:
http://www.fas.org/irp/offdocs/nspd/index.html

The National Response Framework:
http://www.dhs.gov/xprepresp/committees/editorial_0566.shtm

Food and Agricultural incident annex to NRF:
http://www.learningservices.us/pdf/emergency/nrf/nrp_foodagincidentannex.pdf

NIMS training:
http://www.fema.gov/emergency/nims/nims_training.shtm

List of diseases and disinfectants: http://www.agr.ne.gov/homeland/monograph_004.doc

management agency's website. Plans specific to agricultural emergencies such as foreign animal and plant diseases can sometimes be found at the state department of agriculture website. Becoming familiar with these documents can provide a framework for developing local response priorities and plans.

In the development of this guide, an annotated bibliography was prepared that reviews several of these documents. This bibliography can be found at http://trb.org/news/blurb_detail.asp?id=9424 (*10*).

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10. Graham, J. L., Hutton, J. M., Cao, S., Fagel, M., and Wright, W., "A Guide to Emergency Quarantine and Isolation Controls of Roads in Rural Areas." Final Report NCHRP Project 20-59(22), Transportation Research Board, May 2008.
11. White House, Homeland Security Presidential Directive 5 (HSPD-5), "Management of Domestic Incidents," February 28, 2003.
12. White House, Homeland Security Presidential Directive 9 (HSPD-9), "Defense of United States Agriculture and Food," February 3, 2004.

APPENDIX A

Agroterrorism Policy Background

Federal Policy

Following the September 11, 2001, terrorist attacks on the World Trade Center buildings, the United States increased its focus on security; the Department of Homeland Security (DHS) was established, and several presidential directives regarding national security, emergency response procedures, agroterrorism, and bioterrorism were written. Brief summaries of the Homeland Security Presidential Directives (HSPD) relevant to this guide are provided below.

HSPD 5 (*11*) directs DHS to:

1. Develop and administer a National Incident Management System (NIMS), which includes a core set of concepts, principles, terminology, and technologies covering all aspects of emergency response, and provides a consistent approach for all levels of government to work effectively and efficiently together to prepare for, respond to, and recover from all types of domestic incidents.
2. Develop and administer a National Response Plan, now called the National Response Framework (NRF), which integrates all federal domestic prevention, preparedness, response, and recovery plans into a single plan encompassing all disciplines and all hazards. The NRP, using the NIMS, will provide the structure and mechanisms for national level policy and operational direction for federal support to state and local incident managers, and for exercising direct federal authorities and responsibilities, as appropriate.

Recognizing the roles of state and local authorities in domestic incident management, DHS will coordinate with state and local governments to ensure adequate planning, equipment, training, and exercise activities. The Secretary will also assist state and local governments in developing all-hazards plans and capabilities, including those of greatest importance to the security of the United States, and ensure that the state, local, and Federal plans are compatible.

According to the directive, the NIMS and the NRP will be developed, reviewed, and approved by 2003, and federal departments must adopt NIMS as a requirement for participation in federal programs, grants, and contracts. The directive authorizes the Secretary of DHS to develop guidelines for determining whether a state or local entity has adopted the NIMS.

HSPD 8 (*1*) is a companion to HSPD 5 and directs the DHS to:

1. Establish a national domestic all-hazards preparedness goal to help ensure the preparedness of the Nation to prevent, respond to, and recover from threatened and actual domestic terrorist attacks, major disasters, and other emergencies.

The directive states that federal preparedness assistance will be predicated on adoption of statewide comprehensive all-hazards preparedness strategies by September 30, 2005. The strategies should be consistent with the national preparedness goal; assess the most effective ways to

enhance preparedness; and address areas facing higher risk, especially to terrorism, as well as local government concerns and Citizen Corps efforts.

Federal preparedness assistance will support state and local efforts, including planning, training, exercises, interoperability, and equipment acquisition for major events. However, such assistance is not primarily intended to support the existing capacity for addressing normal, local first responder operations, but to build the capacity for addressing major events, particularly those related to terrorism, and includes such prevention activities as terrorism-related information gathering, detection, deterrence, and collaboration.

HSPD 9 (*12*) establishes a national policy to defend the agriculture and food system against terrorist attacks, major disasters, and other emergencies. The Secretary of Homeland Security, in coordination with the Secretaries of Agriculture, Health and Human Services, the Attorney General, and the Administrator of the Environmental Protection Agency, are directed to:

1. Ensure that the combined Federal, State, and local response capabilities are adequate to respond quickly and effectively to a terrorist attack, major disease outbreak, or other disaster affecting the national agriculture or food infrastructure. These activities will be integrated with other national homeland security preparedness activities developed under HSPD-8 on National Preparedness.
2. Develop a coordinated agriculture and food-specific standardized response plan that will be integrated into the National Response Plan. This plan will ensure a coordinated response to an agriculture or food incident; delineate the appropriate roles of Federal, State, local, and private sector partners; and address the subject of risk communication with the public.

State and Local Policies

In response to the presidential directives mandating that state and local agencies be NIMS-compliant in order to receive federal preparedness grants, states began to work on ensuring their own emergency response plans were NIMS compliant, and to assist their counties and cities in meeting the requirements, as well.

At the state level, emergency management agencies maintain state emergency response plans. These plans are usually arranged by emergency type or response function, and they often include a chapter or an annex dedicated to animal or agricultural emergencies. Oftentimes, a state's Department of Agriculture (or equivalent agency) maintains its own agricultural emergency response plan. This plan may be a public document or internal to the organization. It should comply with the principles of the NIMS and include incident command structures that assign response duties in accordance with the National Response Plan. Most state plans assume a response independent of federal government assistance to prepare to meet their citizens' needs in the event that the federal government is overwhelmed and unable to provide assistance for a period of time.

Many states assisted their counties in meeting the NIMS compliance requirements by offering NIMS and ICS training, and developing templates of compliant response plans for counties to modify and adopt. In addition, some states are offering specific foreign animal disease response training, and helping counties to develop FAD response plans.

Policies and plans vary from state to state, and the level of implementation at the county level varies even more. Even with assistance from the state, local agencies have to make choices on how to use their emergency preparedness resources, considering that agricultural emergency preparedness competes with natural disaster, human disease outbreak, and traditional terrorism preparedness.

APPENDIX B

Terminology

Cleaning and Disinfection (C & D) Stations—added to traffic checkpoints as a Level-1 traffic control measure; a station to clean and disinfect vehicles, individuals, equipment, and all articles (fomites) which could mechanically transport an infectious agent.

County Emergency Manager—initiates planning, preparation, and training as part of a county's response to a foreign animal disease.

County Emergency Response Team—provides basic support during local emergencies.

Detour Routes—alternate travel routes used in emergency response efforts to reduce or eliminate traffic flow through quarantine area.

Emergency Management Assistance Compacts—typically developed jointly and signed by all community partners; such agreements describe the specific aid that will be provided or shared between jurisdictions and how the agencies that provide aid will be compensated.

Emergency Operations Center (EOC)—base from which emergency operations are directed and coordinated.

Foreign Animal Disease Diagnostician (FADD)—a credentialed veterinarian specially trained to take diagnostic samples and diagnose a foreign animal disease. As authorized by the State Veterinarian, they are able to issue a quarantine. If responding as the Incident Commander, the FADD will have overall responsibility at the site or event and as such monitors and controls traffic into and out of the infected premises; maintains communication with the State Veterinarian; directs law enforcement in securing immediate premises; and plans for the disinfection of personnel and vehicles.

Homeland Security Presidential Directive/HSPD-5 (*11*)—directs the Department of Homeland Security to develop and administer a National Incident Management System and National Response Plan.

Homeland Security Presidential Directive/HSPD-8 (*1*) **National Preparedness**—calls on transportation agencies to prepare for their roles in the National Incident Management System, which provides "a consistent nationwide approach for federal, state, 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."

Homeland Security Presidential Directive/HSPD-9 (*12*)—establishes a national policy to defend the agriculture and food system against terrorist attacks, major disasters, and other emergencies. Directs the Secretary of Homeland Security, in coordination with the Secretaries of Agriculture, Health and Human Services, the Attorney General, and the Administrator of the Environmental Protection Agency, to ensure that the combined federal, state, and local response capabilities are adequate to respond quickly and effectively to a terrorist attack, major disease outbreak, or other disaster affecting the national agriculture or food infrastructure, and to develop a coordinated agriculture and food-specific standardized response plan that will be integrated into the National Response Plan.

Incident Command System (ICS)—based upon proven management principles consisting of procedures for controlling personnel, facilities, equipment, and communications. Includes a command staff with an incident commander, public information officer, safety officer, and liaison officer, as well as a general staff that includes a planning chief, operations chief, finance and administration chief, and logistics chief. The four sections of the ICS may be subdivided differently depending on the type of emergency, agency resources, or the geographical area encompassed in the response. ICS must be adopted by cities, counties, and other local jurisdictions in order to be NIMS-compliant and eligible for federal programs and grants and should be found in LEOPs.

Incident Commander—sets the incident objectives, strategies, and priorities and has overall responsibility at the incident or event. Requests state or federal resources/assistance, if needed; acts as liaison between the federal, state, and local levels of the response; and identifies no-access and control-access points.

International Safety Equipment Association (ISEA)—the trade association in the United States for companies that manufacture personal protective equipment. Its member companies are world leaders in the design and

manufacture of protective clothing and equipment used in factories, construction sites, hospitals and clinics, farms, schools, laboratories, emergency response, and in the home.

Local Emergency Operations Plan (LEOP)—outlines the roles and responsibilities of responders, traffic control plans, resource management, and emergency management assistance compacts at the local level.

Manual on Uniform Traffic Control Devices (MUTCD)—the standard for signs, signals, and pavement markings in the U.S.

National Incident Management System (NIMS)—includes a core set of concepts, principles, terminology, and technologies covering all aspects of emergency response, and provides a consistent approach for all levels of government to work effectively and efficiently together to prepare for, respond to, and recover from all types of domestic incidents.

National Response Framework (NRF)—integrates all federal domestic prevention, preparedness, response, and recovery plans into a single plan encompassing all disciplines and all hazards. The NRF, using the NIMS, provides the structure and mechanisms for national level policy and operational direction for federal support to state and local incident managers, and for exercising direct federal authorities and responsibilities, as appropriate. The NRF replaced the National Response Plan (NRP) in March 2008.

Nonstandard Traffic Control—minimal traffic control measures that should be replaced with standard traffic control devices as soon as they become available.

Operations Section—the section of the Incident Command Structure typically assigned responsibility for all activities focused on reducing the immediate hazard, saving human life and property, establishing situational control, and restoring normal operations. The structure of the Operations Section can be based on jurisdictional boundaries, operational considerations, or a combination of both.

Occupational Safety and Health Administration (OSHA)—the main federal agency charged with the enforcement of safety and health regulations.

Personal Protective Equipment (PPE)—safety apparel that meets the requirements of the ISEA "American National Standard for High-Visibility Apparel," and labeled as meeting the standard performance for Class 2 risk exposure.

Public Information Officer (PIO)—a member of the Command Staff responsible for interfacing with the public and media or with incident-related information requirements. Informs the local community of the existence and location of traffic control points and the associated alternate routes.

Quarantine—an order issued by the state veterinarian or authorized department of agriculture official restricting the movement of agricultural products such as livestock, poultry, or produce. Can be ordered on a single animal or herd, or across a geographical area.

Quarantine Enforcement Section—the section of the Incident Command Structure that is responsible for enforcing movement restrictions.

Road Closures—a Level 3 method of traffic control (as defined in section 4.1); roads are barricaded and all traffic movement is stopped.

Standard Operating Guideline (SOG)—guidelines used by law enforcement officers that describe the appropriate actions that may be used to enforce different regulations.

Stop Movement Order—issued by the state veterinarian or department of agriculture official, prohibiting the movement of a particular agricultural product into, out of, or within state boundaries.

Traffic Checkpoints—a Level 1 and 2 method of traffic control (as defined in section 4.1); used to prevent the spread of animal disease or plant pest by ensuring traffic is controlled and that no potentially contaminated or infected animals, plants, equipment or vehicles are allowed to move in or out of the quarantine area.

Unified Command—a command structure allowing agencies with different legal, geographic and functional authorities and responsibilities to work together effectively without affecting individual agency authority, responsibility or accountability.

Abbreviations and acronyms used without definitions in TRB publications:

AAAE	American Association of Airport Executives
AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
ACI–NA	Airports Council International–North America
ACRP	Airport Cooperative Research Program
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	Air Transport Association
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
NASAO	National Association of State Aviation Officials
NCFRP	National Cooperative Freight Research Program
NCHRP	National Cooperative Highway Research 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 (2005)
TCRP	Transit Cooperative Research Program
TEA-21	Transportation Equity Act for the 21st Century (1998)
TRB	Transportation Research Board
TSA	Transportation Security Administration
U.S.DOT	United States Department of Transportation