



In an FMD outbreak, quarantine, movement control, and continuity of business (managed movement) help to achieve the goals of an FMD response. In particular, these critical activities work to control and contain FMD, striving to eradicate the virus while providing science- and risk-based approaches to facilitate the movement of non-infected animals and non-contaminated animal products to stabilize animal agriculture, the food supply, the economy, and protect public health.

## Quarantine and Movement Control in an FMD Outbreak

In an FMD outbreak, quarantine and movement control are critical activities for an effective FMD response effort. By restricting the movement of infected animals, animal products, and contaminated fomites, quarantine and movement control play a significant role in stopping the spread of FMD. Quarantines will be implemented for Infected, Suspect, and Contact Premises. Movement controls will be implemented for At-Risk and Monitored Premises within a Control Area (CA).

## Continuity of Business (Managed Movement) in an FMD Outbreak

This helps to facilitate agriculture and food industries in maintaining business operations, while also mitigating the risk of disease spread. Continuity of business planning can

- ◆ protect animal health by preventing the transmission of FMD from an infected to a naïve animal subpopulation,
- ◆ protect food security by facilitating the movement of food products to processing, and
- ◆ help to mitigate the impact of quarantines on non-infected premises in regulatory CAs.

## How Does Continuity of Business Work with Quarantine and Movement Control?

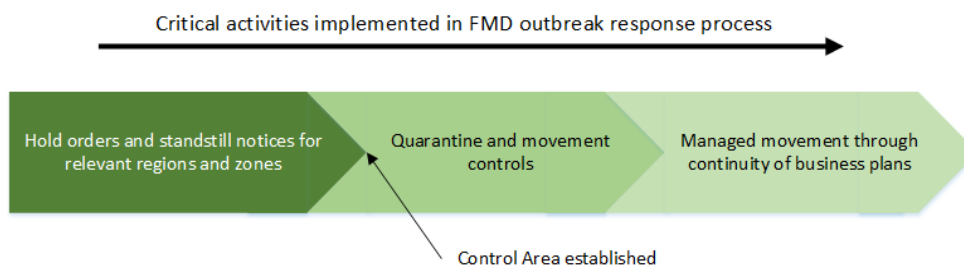
Quarantine, movement control, and continuity of business have the same ultimate goal: to prevent the transmission of FMD to non-infected premises, particularly those outside the CA. While quarantine and movement restrictions are highly effective at limiting the spread of disease, they also impede typical business operations—this is when continuity of business plans enter into response efforts to effectively manage movement.

- ◆ **Quarantines and movement controls** are applied to premises in a regulatory CA to ensure infected animals and contaminated fomites and products do not leave premises. Quarantines are applied to Infected, Contact, and Suspect Premises. Movement controls are applied to At-Risk and Monitored Premises. Consideration will be given to critical movements (i.e., feed trucks).
- ◆ **Continuity of business or managed movement** is intended to manage movement for non-infected premises (At-Risk and Monitored Premises).

## Implementation of Quarantine, Movement Control, and Continuity of Business in an FMD Outbreak

Immediately after FMD detection, a regulatory CA, comprised of an Infected and Buffer Zone, will be designated. Quarantines will be implemented for Infected, Contact, and Suspect Premises in this regulatory CA. Continuity of business plans—ideally developed in advance—will be implemented to facilitate the managed movement of commodities and animals from At-Risk and Monitored Premises existing within this regulatory CA, helping these industries continue business operations. At all times, consideration will be given to critical movements, like feed trucks.

In an FMD outbreak, a Unified Command would be established to manage the incident. The animal health emergency response plan of every State and Tribal Nation should describe the implementation of quarantine and movement controls, including a permit system. USDA may also impose a Federal quarantine for the management of interstate commerce from infected States.



**In an FMD outbreak, there will be competing priorities for resources in order to conduct the critical activities required to control, contain, and eradicate FMD. Planning is vitally important to ensure that limited resources are used effectively and efficiently.**

## FMD-Specific Challenges

The FMD virus is highly contagious and can spread easily through fomite movement. In addition, an outbreak of FMD would have significant economic implications in terms of interstate trade and international commerce. The capabilities required to respond to an FMD outbreak are extensive. Any response effort, whether the outbreak is large or small, will require significant operational capabilities.

## Critical Activities and Tools

In addition to quarantine and movement control and continuity of business, other critical activities will be implemented in an FMD outbreak to contain, control, and eradicate the virus. These include

- ◆ a public awareness campaign,
- ◆ epidemiological investigation and tracing,
- ◆ rapid diagnosis and reporting,
- ◆ increased surveillance,

- ◆ biosecurity measures,
- ◆ cleaning and disinfection,
- ◆ appropriate disposal procedures,
- ◆ mass depopulation and euthanasia (as response strategy indicates), and
- ◆ emergency vaccination (as response strategy indicates).

## Continuity of Business Is a Public, Private, Academic Partnership

Continuity of business planning requires the active collaboration, communication, and coordination of public officials, private industry, and academia/extension experts. Prior to an outbreak, these groups work together to develop the processes by which non-infected premises can move non-infected animals and non-contaminated animal products. Collaboratively, proactive risk assessments will be used to develop the requirements for movement of commodities out of a regulatory CA. These requirements can include biosecurity measures, cleaning and disinfection procedures, and surveillance sampling prior to movement. With the backing of regulators, the support of industry, and the expertise of academia, the development of continuity of business plans is a critical activity in effective FMD preparedness and response.

## Preparedness and Response Goals for Continuity of Business

- ◆ Provide science- and risk-based approaches and systems for the continuity of business involving non-infected animals and non-contaminated animal products.
- ◆ Establish a transparent and effective system for risk assessments, surveillance requirements, biosecurity procedures, and a permit process in order to promote stakeholder acceptance and compliance with regulatory interventions by State, Federal, and Tribal authorities.
- ◆ Work with industry and Incident Command to facilitate and permit movement of non-infected animals and non-infected animal products throughout the outbreak. Enter permits and movements in EMRS 2.0 in a timely fashion (at least 24-hour intervals).
- ◆ Perform proactive risk analysis or risk assessments for the movement of animals and/or animal commodities that are potentially disrupted or affected by a disease response.
- ◆ Establish capabilities to prove disease-freedom and flock or herd health production parameters for interstate trade.
- ◆ Implement continuity of business plans (the Secure Food Supply Plans) when a CA is established.

## What Are the Current Continuity of Business Planning Initiatives for FMD?

There are a number of successful efforts underway where the government, private sector, and academia are collaborating to improve continuity of business planning for an FMD outbreak. Current planning initiatives include the:



**Secure Milk Supply:** In progress. Goal of planning is to avoid and mitigate interruptions in raw milk movement from dairy farms to processing during an FMD outbreak.

**Secure Pork Supply:** In progress. Goal of planning is to avoid and mitigate interruptions in the movement of pork and pork products during an FMD, classical swine fever, African swine fever, or swine vesicular disease outbreak.

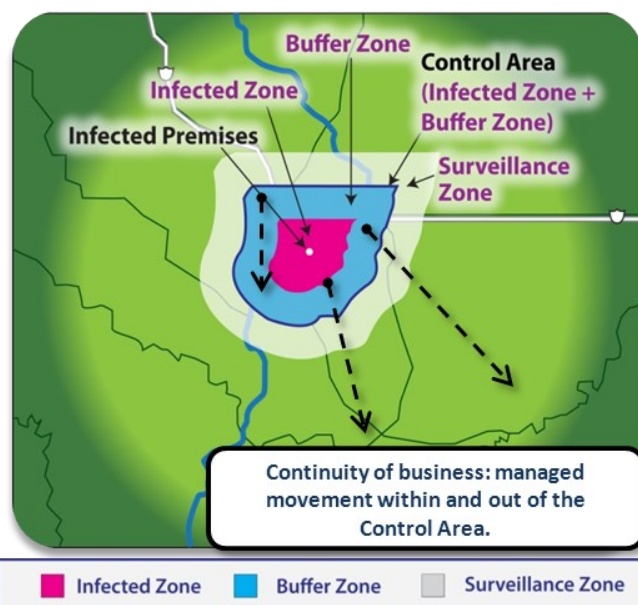
**Secure Beef Supply:** In progress. Goal of planning is to avoid and mitigate interruptions in the movement of beef and beef products during an FMD outbreak.

Please see the Overview of the Secure Food Supply Plans Ready Reference Guide for more information on these and other projects.

### What Are Key Elements of Continuity of Business Plans for Managed Movement?

Continuity of business plans will vary, depending on the industry and specific commodity of interest. However, a number of common elements will appear, some of which are listed here:

- ◆ **Risk assessments:** Proactive risk assessments can help determine the disease transmission risk of specific product movements.
- ◆ **Surveillance requirements:** How frequently samples will be collected, from what populations, and for how long.
- ◆ **Biosecurity guidelines:** Appropriate precautions, personal protective equipment, and specific steps for various fomites and equipment.
- ◆ **Cleaning and disinfection procedures:** Cleaning requirements for various fomites and equipment, including information on appropriate disinfectants.
- ◆ **Epidemiological information:** Information on routine and non-routine movements to and from premises, as well as information on the number of animals, species, and age of animals.
- ◆ **Permitting guidance:** Transparent, explicit guidance for Incident Command regarding movement requirements for various commodities.

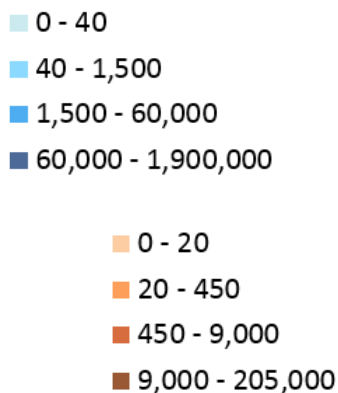
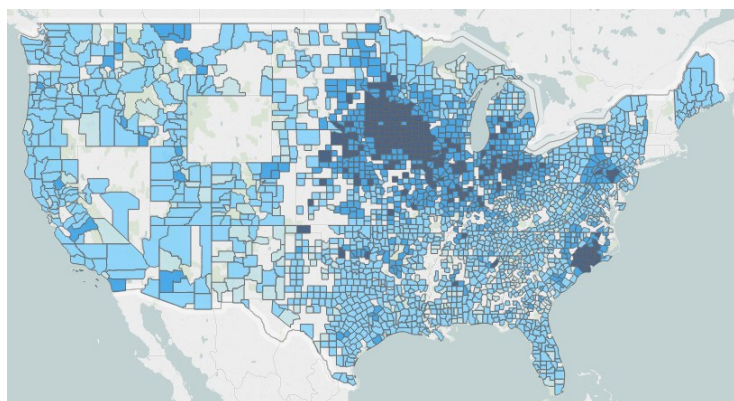




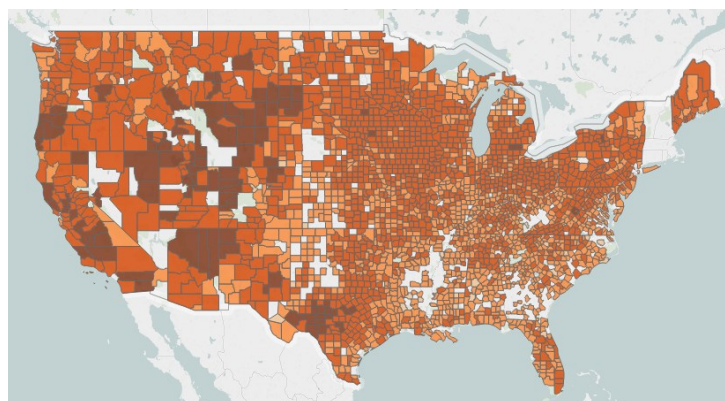
## Overview

The previous page highlights the importance of quarantine and movement control measures and continuity of business (managed movement) plans in the event of an FMD outbreak to contain, control, and eradicate FMD while stabilizing animal agriculture, the food supply, the economy, and protecting public health. The maps on this page provide a common picture of livestock densities and distributions to understand the potential impact of quarantines, movement controls, and understand the imperative for continuity of business planning. The degree of interstate commerce and international trade in the United States (continued on the next page) means that an FMD outbreak would have a significant economic impact as movement of animals (and products) slows dramatically or even halts, particularly in the beginning of an outbreak.

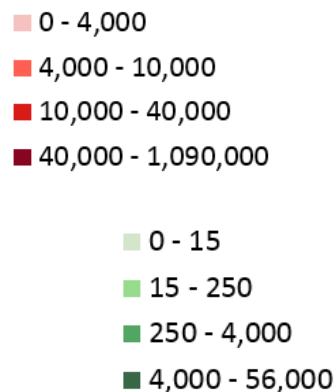
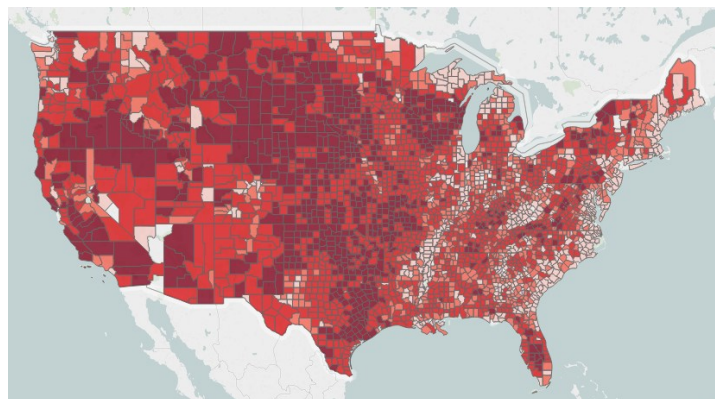
### Swine Population by County



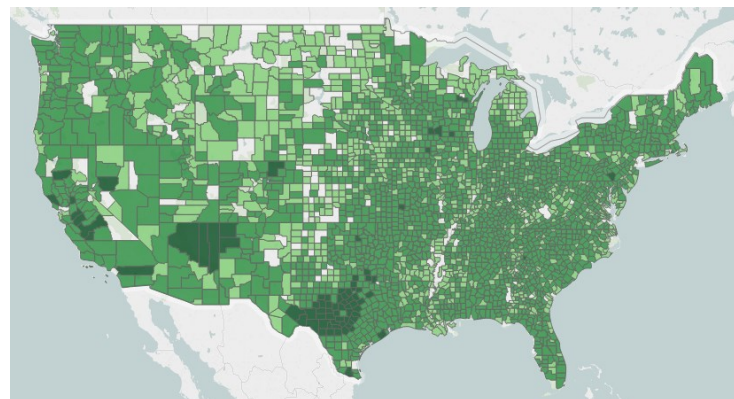
### Sheep Population by County



### Bovine Population by County



### Goat Population by County



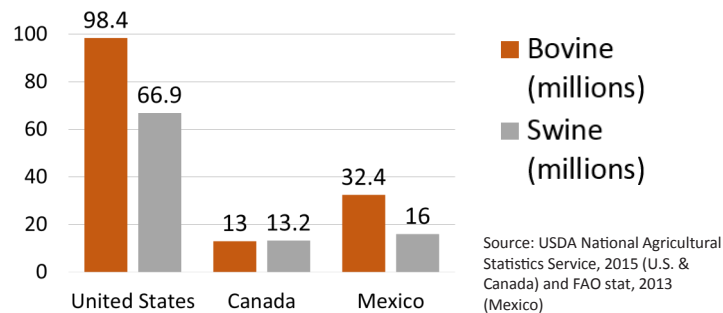
Data may be incomplete. Best available data incorporated.

Source: National Agricultural Statistics Service, 2012

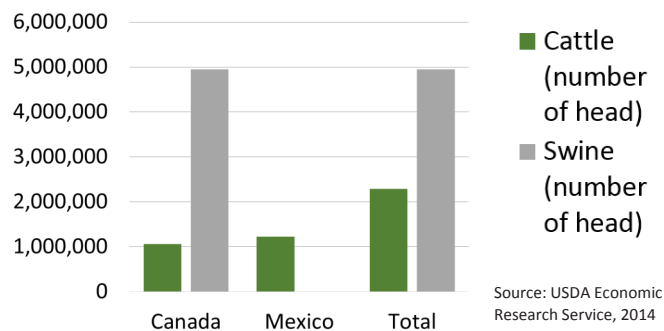




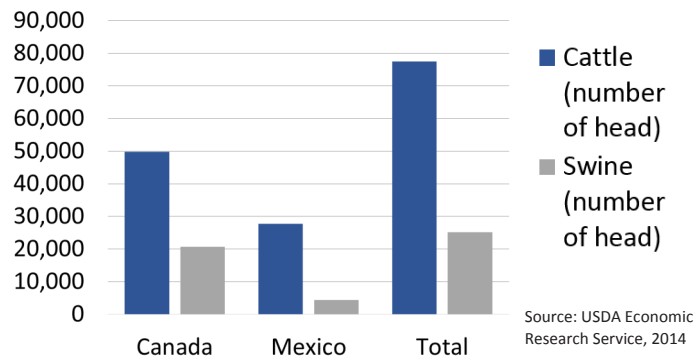
### Swine and Bovine Inventory—North America



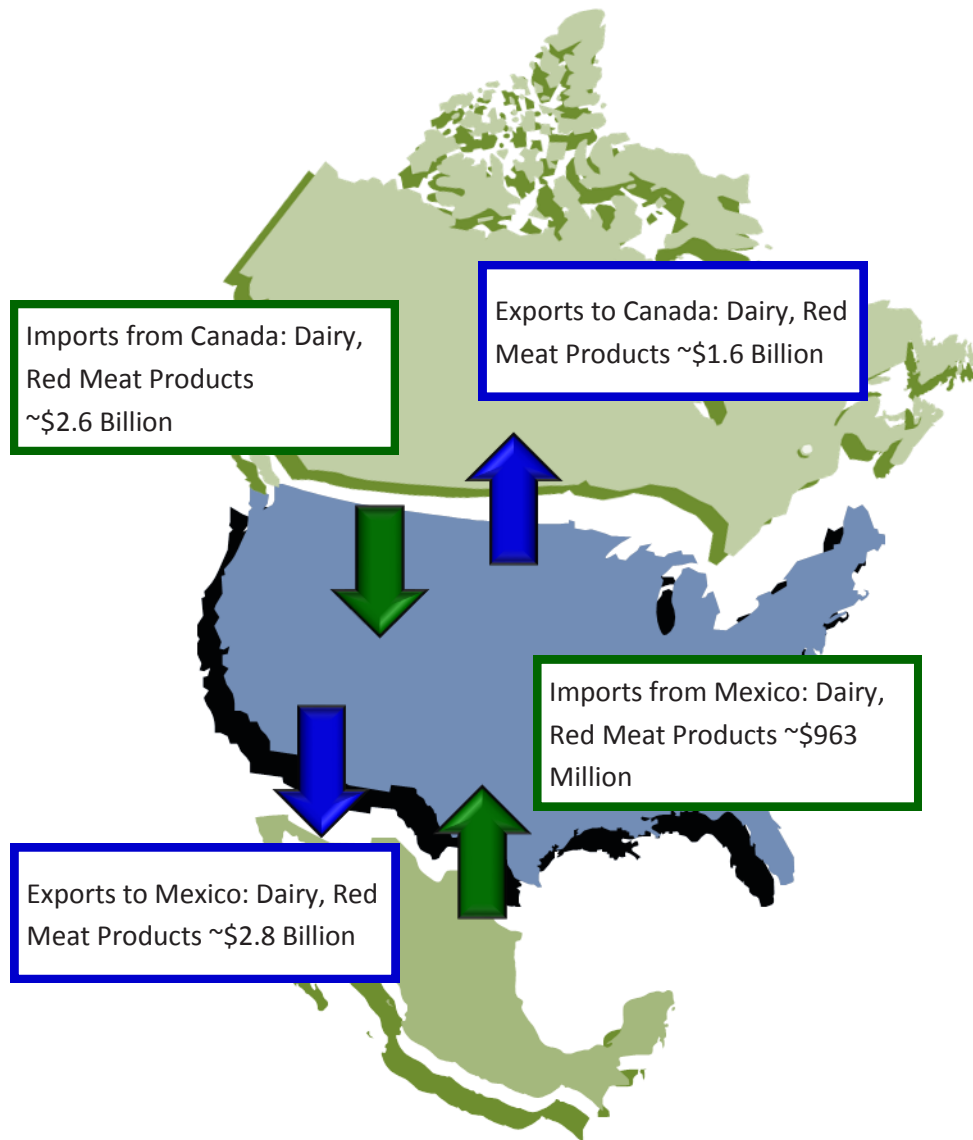
### U.S. Imports from Mexico and Canada (Live Animals)



### U.S. Exports to Mexico and Canada (Live Animals)



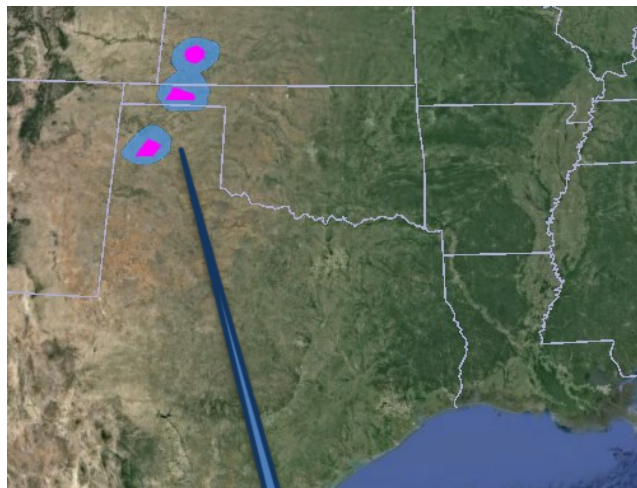
### U.S. Product Imports and Exports to Canada and Mexico (Value)



Source: USDA Foreign Agricultural Service, 2014

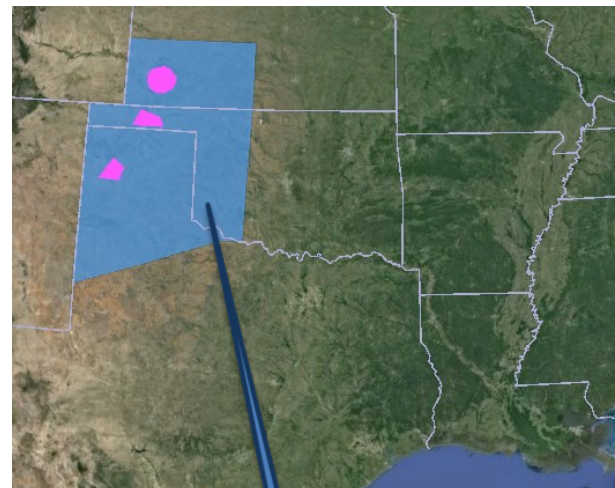
## Control Areas in an FMD Outbreak (Small and Medium)

There are many different factors that will be considered in determining the size of a Control Area. Smaller Control Areas may mean that fewer premises and animals are affected by quarantines and movement controls, however, if premises or animals are infected but undetected, there is a higher chance they may exist outside the Control Area (increasing the risk of disease spread).



### Small Control Areas

Affected:  
~4.6 million  
livestock  
~4,500  
operations



### Medium Control Areas

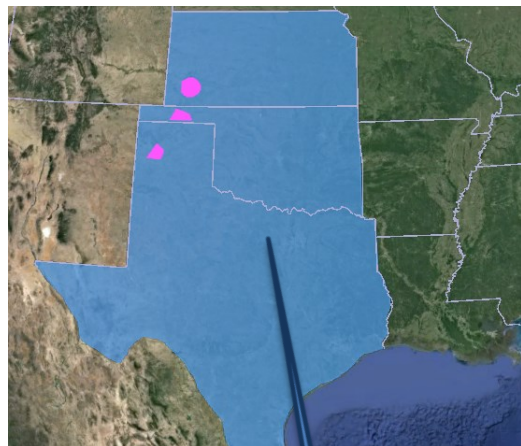
Affected:  
~10 million  
livestock  
~27,000  
operations

Data source: National Agricultural Statistics Service, 2012.



## Control Areas in an FMD Outbreak (Large)

There are many different factors that will be considered in determining the size of a Control Area. Large Control Areas may mean that many more premises and animals are affected by quarantines and movement controls, however, if premises or animals are infected but undetected, it is likely that they may exist within the Control Area rather than outside of it, limiting the spread of disease.



### Large Control Areas

**Affected:**  
~28 million  
livestock  
~283,000  
operations

Data source: National Agricultural Statistics Service, 2012

## Minimum Sizes of Zones and Areas

Zone or Area	Minimum Size and Details
Infected Zone (IZ)	Perimeter should be at least 3 km ( ~1.86 miles) beyond perimeters of presumptive or confirmed Infected Premises. Will depend on disease agent and epidemiological circumstances. This zone may be redefined as the outbreak continues.
Buffer Zone (BZ)	Perimeter should be at least 7 km ( ~4.35 miles) beyond the perimeter of the Infected Zone. Width is generally not less than the minimum radius of the associated Infected Zone, but may be much larger. This zone may be redefined as the outbreak continues.
Control Area (CA)	Perimeter should be at least 10 km ( ~6.21 miles) beyond the perimeter of the closest Infected Premises. This area may be redefined as the outbreak continues.
Surveillance Zone (SZ)	Width should be at least 10 km ( ~6.21 miles), but may be much larger.

## Regulatory Control Areas: Examples of the Upsides and Downsides to Large and Small Control Areas

Small Control Area	Large Control Area
Certainty that all Infected Premises are contained in Control Area is lower.	Certainty that all Infected Premises are contained in Control Area is higher.
Likelihood of disease spread to outside the Control Area may be higher.	Likelihood of disease spread to outside the Control Area may be lower.
Quarantine and movement controls easier to manage, less resources required, less animals and premises to manage.	Quarantine and movement controls harder to manage, more resources required, more premises and animals to manage.
Potentially less impact to normal business.	Potentially more impact to normal business.

