The outbreak of a high consequence animal disease in Texas would require an unprecedented level of diagnostic testing by TVMDL. Yet, at current staffing levels and equipment, TVMDL's maximum daily testing capacity is estimated at 2000-3000 tests per day. An outbreak of moderate proportion would quickly overwhelm our capabilities.

To continue to protect Texas' animal agriculture economy, TVMDL's workforce must be fully-staffed with trained, experienced professionals able to recognize the first signs of a devastating animal disease (e.g. Foot and Mouth Disease) and be able to quickly process the increased testing such an outbreak would require.

Key to outbreak response is the industry's ability to easily share and analyze real time data. This information can provide baseline prevalence rates for diseases and offer data on the health of animal populations and the threat to human populations.

Program Description

TVMDL will establish increased veterinary biosurveillance capacity via a three tiered program, enabling our agency to perform routine and outbreak-related disease testing and monitoring.

1. Train Diagnosticians
Large gaps exist in the veterinary diagnostic medicine workforce. This effort will invest in the professionals and tools necessary to implement a formal training program in diagnostic specialties experiencing critical shortages.

2. Implement Lab Automation
Sample handling automation and robotic tools will be deployed to allow equipment to take over routine and repetitive procedures, freeing the skilled workforce for higher-level scientific efforts. Initial investment costs are returned many fold as automation reduces human error, lessens repetitive motion injuries, allows more samples to be processed in less time, and leads to higher job satisfaction in employees.

3. Identify Disease Trends
TVMDL will recruit veterinary epidemiologists and analysts to rapidly analyze TVMDL's 700,000+ annual test results to more quickly identify disease patterns and inform first responders for quicker response and mitigation.

Funds will:
- Employ 6 laboratory professionals, 3 veterinary trainees, 4 technical positions and 2 support staff, to be supplemented by significant assistance and involvement by current TVMDL veterinarians, scientists, and IT professionals.
- Supply automated liquid handling and sample preparation robots, barcoding instrumentation, software-to-instrument interfacing, and high throughput testing platforms.
- Secure necessary software for data collection, analysis and reporting.

Objective
Invest in the professionals and tools necessary to protect the health of animal populations and prevent disease outbreaks from spreading to human populations.

Requested Amount (Biennial)
$3.44 million
Impact of Animal Disease Outbreaks

Early warning of animal disease outbreaks and the capacity to predict disease spread is essential for mitigation and control. Outbreaks cause waves of economic loss, from ranchers through production and into retail sectors.

**What is it?** highly contagious disease of cloven hoofed animals such as cattle, swine, sheep, goats and deer

**Foot and Mouth Disease**
- 2001 outbreak affected 10M animals in UK
- 11.7M cattle in Texas could mean
  - $10.5B at risk

**What is it?** zoonotic disease commonly transmitted by mosquitoes, affecting horses more than other mammals

**West Nile Virus**
- TVMDL diagnosed 300% more positive cases in 2016 than 2015
- 40% cases result in death in horses
- With 1M horses in Texas, the state has experienced
  - $7-9M in annual losses

**What is it?** a neurological disease in deer, elk, moose and other members of the cervid family

**Chronic Wasting Disease**
- TVMDL currently performs over 30,000 CWD tests annually
- TVMDL has reached capacity in testing for CWD and is contracting with other states to test Texas’ animals
- The popularity of captive deer breeding and hunting could mean
  - $2.2B at risk

**What is it?** zoonotic disease affecting chickens, turkeys, other birds and people

**Avian Influenza**
- 2014-2015 outbreak affected 50.4M birds in US
- With 1.2B production birds in Texas, the industry could suffer
  - $2.1B in losses

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