

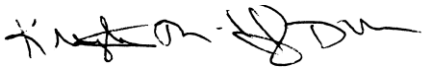
ADVANCING ANIMAL DISEASE TRACEABILITY THREE YEAR ROAD MAP FOR VERMONT

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Submitted by:

DR. KRISTIN M. HAAS

STATE VETERINARIAN AND DIRECTOR OF FOOD SAFETY & CONSUMER PROTECTION
VERMONT AGENCY OF AGRICULTURE, FOOD AND MARKETS
116 STATE STREET
MONTPELIER, VERMONT 05620
(802)828-2421



Submitted to:

Dr. Koren Custer

ASSISTANT DIRECTOR, DISTRICT ONE
VETERINARY SERVICES
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE
160 WORCESTER-PROVIDENCE TURNPIKE
SUTTON, MASSACHUSETTS 01590
(508)363-2290

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1 EXECUTIVE SUMMARY

Vermont's livestock ID and disease traceback program has experienced multiple iterations in the past decade, not all of which were well received by key stakeholders or able to be implemented effectively. The document that follows outlines the key components and benefits of Vermont's current Animal Disease Traceability (ADT) program, which is compatible with USDA- APHIS-VS' ADT rule.

Implementation and maintenance of a sustainable ADT program in Vermont serves as the cornerstone of the state's ability to prevent introduction of foreign and domestic livestock disease and, through effective traceback, to quickly mitigate the impact of an outbreak should it occur. This in turn will help to lessen the economic impact of a high consequence disease outbreak as it will allow Vermont to return as quickly as possible to normal business operations within its animal agriculture sectors following an outbreak. Additionally, continued successful implementation of a robust ADT program will allow Vermont producers to continue to engage in interstate and international commerce with their livestock and livestock products as other states, territories and Canadian provinces will have greater confidence in the disease-free status of Vermont's stock.

While the ADT program is a separate entity from the former NAIS initiative, some of the lessons learned during NAIS have been applied to the ADT model, including the benefit of permanent official ID in all livestock species that are moved in interstate commerce and the importance of a graduated implementation model to secure stakeholder buy-in and cooperation.

Strict attention to several key elements is critical to continued implementation and maintenance of a successful ADT program in Vermont. These include, but are not limited, to the following:

- Data management systems and IT hardware that supports the collection, maintenance and dissemination of ADT-pertinent records (Certificates of Veterinary Inspection and official ID distribution records) in electronic format. These systems must allow for efficient sharing of information between internal and external in-state stakeholders; between Vermont and other states, territories and tribes; and between the state of Vermont and its federal partners.
- Ensuring that resources supporting an effective Vermont ADT program are available to those involved. Resources include easy access to official identification, free or reduced cost of official identification, a clear understanding of the many different official identification devices, access to IT systems that support electronic movement paperwork, and subject matter expertise to assist stakeholders with ADT implementation.
- Effective outreach programs that ensure the compliance of all pertinent stakeholders with state and federal ADT standards and regulations.
- Effective collaboration that leads to sharing of personnel, IT and monetary resources necessary to implement this program. This is essential since the resources of any single entity are likely insufficient to develop a robust ADT program.
- Engagement in specific activities that support the application of official identification in all covered livestock species *prior* to leaving the farm(s) of birth/origin. This is critical given the way in which livestock moves in Vermont and the large percentage of animals, especially bob

calves, that are commingled during transport, shipped interstate, and whose final disposition is often not known at the time of pick-up from the farm of origin.

The costs associated with successful ADT program implementation/maintenance are significant and include monetary costs and in-kind contributions. The document that follows describes in greater detail some of these costs, but in general, the funding that is available through the Cooperative Agreements is insufficient to completely offset the cost of program implementation and maintenance in any given year. A successful program will depend heavily on the availability of Vermont General Fund money and on the in-kind contributions of state animal health specialists and veterinarians. Please refer to the Budget Requirements Section of this document for a more detailed explanation.

2 CURRENT TRACEABILITY SITUATION

2.1 Who are we?

The primary responsibility for advancing animal disease traceability in Vermont rests with the office of the State Veterinarian within the Vermont Agency of Agriculture, Food and Markets (the Agency). Key internal supporters of ADT advancement include the Office of the Secretary, the dairy policy administrator, meat inspection and dairy regulatory section personnel, and the business office. Vermont is considered a single traceability unit as it is a small state with well-integrated, highly mobile, long standing livestock agriculture industries. The most significant of these industries is dairy, and the number of smaller diversified farms and on and off-farm dairy processing plants has increased over time. This expansion presents a unique ADT challenge for regulatory officials as many of the producers who sell animal-based food products directly to consumers (e.g. raw milk, small diversified farms) are generally skeptical of regulatory authority and the application of official ID in their livestock. Additionally, although Vermont allows the sale of raw milk direct to consumers, there is no producer registration requirement, which limits the Agency's ability to directly interact with this agricultural sector and explain to them the importance of ADT. More information can be found at <http://nesaasa.weebly.com/ne-sms-project.html>

External ADT stakeholders would include these producers and conventional producers of multiple livestock species. Other external ADT stakeholders include accredited food animal veterinarians, livestock auction market personnel, personnel associated with livestock comingling facilities, dairy cooperatives, licensed livestock dealers, haulers and transporters, dairy service providers, and industry organizations such as the Vermont Farm Bureau and Green Mountain Dairy Association. Vermont state veterinarians and animal health personnel believe that one-on-one outreach is a critical step to gaining compliance from these stakeholders, and that process is ongoing. The initial round of outreach to all external stakeholders was completed in 2013, but continued outreach through the Agency's publications of record and newsletters and via direct interaction is necessary due to continual stakeholder turnover. This grass roots outreach campaign has been chosen by Vermont over the formation of a formal ADT advisory group as the communication that can happen one-on-one is preferable to that which can occur in a large group setting involving only representatives of pertinent industries. In addition to being a labor-intensive program, successful ADT implementation/maintenance relies heavily on a robust document management system.

Prior to 2010, VT's ADT data was stored in paper format, which impeded the Agency's ability to efficiently trace livestock ID when needed. Since the acquisition of USAHerds in early 2010, the storage of all ADT data has been handled electronically, and this is expected to continue. The values that will guide this initiative going forward, in addition to effective outreach communications, include emphasis on maintaining all data in an easily searchable electronic format and emphasis on stakeholder compliance with maintenance of similar records in their respective offices. Over the past 5 years, Vermont has implemented use of various software functionalities (eCVI, mCVI, CIVET) that have allowed automatic upload of Certificates of Veterinary Inspection, thus increasing data entry speed and accuracy by eliminating manual entry steps.

During the 2017 legislative session, through Act 30, state lawmakers modernized Vermont laws that regulate livestock movement in the State. As with any new law or rule, the Agency will spend considerable time educating and providing technical assistance to farmers and licensed dealers/transporters regarding these statutory updates, which became effective on July 1, 2017, prior to taking any enforcement action against violators of the new language. Act 30 requires all livestock being transported within the State to satisfy the requirements for official identification for interstate movement under the U.S. Department of Agriculture (USDA) Animal Disease Traceability rule, 9 C.F.R. part 86 prior to leaving the property of origin, regardless of the reason for movement or duration of absence from the property. Livestock include dairy and beef cattle, sheep, goats, pigs and camelids. Examples of livestock movement within the state that this requirement applies to include transport from the farm of origin to a slaughter facility, movement to a new farm location, and transport to a fair or exhibit.

2.2 Where are we now?

Effective animal disease traceability is a critical component of the successful implementation of all livestock regulatory and disease programs for which the Agency is responsible, and the two most significant tenets of that are data management and stakeholder outreach. Data maintenance in an electronic format has facilitated Vermont's ability to meet ADT program expectations. Fortunately, Vermont has not experienced outbreaks of high consequence livestock diseases, so the measure used to determine the true benefit of an electronic records management system has only been tested in an exercise environment and through individual requests from other states for data related to particular animal(s). The data retrieval interval has shortened because of the evolution toward a paperless office. Additionally, Vermont has made available to accredited veterinarians multiple options for electronic CVIs, some of which can be automatically uploaded into USAHerds, and these are routinely used by multiple Vermont practices. Most recently, this same functionality has been made available to veterinarians through the mCVI mobile application, hosted and maintained by the Institute for Infectious Animal Disease. Additionally, Vermont implemented use of the CIVET functionality, which will further shorten the time required for data entry of the electronic CVIs and increased data entry accuracy as multiple manual entry steps are eliminated with this functionality. When it is necessary for the Agency to perform a trace back, verbal communication between the animal health staff is critical and is usually accomplished in a timely fashion. Depending on the case, communication via phone, email and text with other SAHOs is sometimes necessary. After-hours contact information is available for all these individuals; however, the ability to contact outside of normal business hours other industry officials who may have records critical to effective trace back

of a particular case is unreliable. The USAHerds database is web-based and fully searchable based on animal ID, but there are limitations on accessibility of the database by those not employed by the Agency as access is password protected. In instances where data is needed by other state and federal animal health regulators, reports from the USAHerds database can be generated and shared on a need to know basis. The Agency depends largely on federal cooperative agreement money to cover some of the costs associated with the increasing amount of data entry that is necessary and the inevitable software upgrades/hardware purchases needed to accommodate this capture of information in the most efficient manner possible.

2.3 Strengths and Weaknesses

The ADT-related strengths that allow the Agency to successfully implement a robust traceability program include the following:

- Experienced animal health field personnel and veterinarians who have a comprehensive working knowledge of Vermont's industries and who can identify and communicate with key ADT stakeholders effectively.
- Experienced administrative support staff with capable IT skills.
- Use of forms of ID (13 steel tags) with which stakeholders are already familiar.
- Use of an animal health software system that allows for electronic storage of ADT-pertinent documents and data.
- Agency participation in a USAHerds user group consisting of a consortium of states as this forum is useful for sharing ideas on how to streamline database functions and potentially share in the cost of software upgrades.
- External stakeholders who are willing to upgrade their record keeping systems to facilitate more effective information sharing and information searching (DVM's use of electronic CVIs and GVL EIA test charts).
- Small state size and relatively few external stakeholders make communication and outreach easier than it otherwise would be.
- Fostering of excellent working relationships with partner agencies such as DMV, which enhances the Vermont Agency of Agriculture's ability to enforce ADT requirements
- Willingness of the Vermont Agency of Agriculture to dispense official ID and applicators to a wide variety of stakeholders, including veterinarians, producers and licensed dealers/transporters.
- Recently passed Act 30, which requires official identification of livestock for intrastate movement.
- Strong outreach initiatives continuously underway for the major livestock species groups (beef, dairy, swine) for topics other than official identification.

The ADT-related challenges that the Agency faces and that hinder efforts to successfully implement a robust traceability program include the following:

- Employee turnover in the animal health section of the Agency results in a loss of institutional knowledge about the ADT-pertinent industries and stakeholders.
- Lack of redundancy in the administrative support within the Agency results in a periodic delay in data entry.

- Intermittent insufficient agency IT budget to cover the cost of needed software/hardware upgrades and the cost associated with implementing options for more efficient data collection/storage within the external stakeholder community.
- Reluctance on the part of some external stakeholders to change long-standing practices, even though change could result in a more streamlined internal and external data management system.
- The existence of a very vocal opposition in some external stakeholder groups who refuse to comply with the traceability rule and other associated regulations/laws
- Insufficient personnel to do spot checks on DVM and other external stakeholder record keeping systems.
- Lack of communication between state and federal databases (USAHerds and EMRS, USAHerds and VSPS) which prevents data exchange or automatic uploads.
- Lack of communication between state and tag companies regarding tags issued to producers which necessitates administrative staff manually entering tag numbers from the federal AIN system.
- Insufficient personnel to monitor activity at out of state markets.
- Lack of willingness of surrounding states to dispense official ID and applicators to a wide variety of stakeholders, including veterinarians, producers and licensed dealers/transporters.
- DMV checkpoints do not always align with common areas where livestock cross the Vermont border.

2.4 Opportunities and Threats

Improving ADT capability within Vermont has allowed for the capture of a greater number of geo-coded agricultural premises, which in turn, facilitates communication with those producers and mobilization of resources to them during the response phase of a myriad of emergency incidents. Historically, the Agency's ability to perform animal health-focused assessments of farm premises within its borders was severely hampered due to lack of dairy farms' inclusion in a database containing GIS mapping capability. This capability has improved since dairy farm data is now maintained in USAHerds and updated on an ongoing basis. The Agency has implemented the USA Food Safety database for use within the Agency, which has allowed for more dairy farm premises attributes to be captured and maintained, which will augment ADT efforts. The ability to more effectively trace individual animals has been improved under the ADT framework, which would make the response to a livestock FAD more efficient and productive. The Vermont Department of Emergency Management and Homeland Security depends on the Agency to provide essential data farm mapping information during emergency exercises and real-life events. The most prominent threat that the ADT program faces in Vermont comes from the agricultural sector comprised of individuals who are generally philosophically opposed to identifying their livestock. Members of this agricultural sector are often difficult to reach and as a result ill-informed as to proper biosecurity principles and preventive health measures, and their livestock can be the most difficult to trace during a disease outbreak. The inconsistency with which Vermont slaughter facilities record and capture official ID of the animals they slaughter creates a challenge to full implementation of bookend ADT in Vermont. However, with the passage of ACT 30 and the outreach initiatives that have been initiated over the past 3 years,

the Agency has created opportunities to work with these sectors and facilitate more widespread use of animal identification.

2.5 Inventory of existing infrastructure and suitability assessment

As previously referenced, one animal health FTE routinely handles all the ADT-related data entry for the Agency, which is challenging in that there is sometimes a backlog of CVIs and test records to enter, thus rendering them unsearchable by field staff should the need arise. The rest of the animal health section is comprised of two veterinarians equating to 1.5 animal health-focused FTEs, and three field staff members. Although the field personnel and both veterinarians are equipped with laptops and smartphones with data plans, their accessibility to the web-based USAHerds program is sometimes limited in the field by lack of state-wide high-speed internet capability and cell phone connection in general. These limitations may at times lessen the efficiency of performing tracebacks. The Agency has purchased within the past three years three RFID wand scanners which can be used to record data during a herd inventory and then automatically uploaded to a computer to be entered into USAHerds. Within the office setting, animal health documents including CVIs and test records that were created prior to January 2010 are maintained in paper format and are stored in the office or off site in the state's records archive room. Those documents created after 2010 are entered and scanned into USAHerds. The USAHerds database is password protected and resides on a virtual 425-megabyte capacity server that is housed in a secure state server room off site. The database can be accessed off site by personnel with usernames and passwords. All information entered from the office is backed up daily. Data entered into USAHerds may then be used to "virtually request" from the national premises allocator a national premises ID if the farm owner desires. Otherwise, the data resides at the state level under a unique searchable identifier. The USAHerds database is compatible with multiple eCVI products, which allows for automatic data upload in many instances on an interval determined by the user.

3 VISION AND MISSION CONTEXT FOR ADVANCING TRACEABILITY

3.1 Vision Statement

Protect the health and welfare of Vermonters and their livestock through the advancement of a safe and secure food supply within a marketplace that provides fair and equal access to consumers and processors while enhancing Vermont's working landscape, rural character and local economies.

3.2 Mission Statement

Maintain the ability of Vermont's food and livestock products to be sold locally, nationally and internationally. This is accomplished through working with the United States Department of Agriculture and other states to ensure that our livestock regulatory programs are equal to or exceed federal guidelines.

4 TRACEABILITY REQUIREMENTS

4.1 Strategic goals

- To continue to implement a State-wide infrastructure for advancing animal disease traceability compatible with State and USDA standards
- To effectively communicate to all internal and external stakeholders the benefit of a robust animal disease traceability system to the wellbeing of Vermonters and their livestock
- To effectively monitor stakeholder compliance with record keeping and to have penalties for those who are non-compliant (lose ability to distribute tags, put accreditation in jeopardy, required to submit records to state veterinarian on a routine basis)

4.2 Program objectives

- Continue to target, develop, and implement outreach communication regarding data quality and processing for animal health information forms, as well as other ADT standards
- Continue to identify, implement and make available to internal and external stakeholders at no or minimal cost, relevant IT systems that facilitate the electronic sharing of livestock disease surveillance and animal movement data to reduce duplicate data entry and information capture
- Continue to identify and adopt data management practices that allow for minimization of paper ADT records and facilitate transition into a fully electronic records management system; and develop the infrastructure to support this initiative
- Provide tools to external stakeholders that will improve their ADT animal ID and record keeping compliance
- Input into the USAHerds database all official ID distribution, including each tag number and person the ID is distributed.
- Shorten retrieval time of available traceability information, internally and externally by enhancing/updating internal IT software and hardware infrastructure for animal health section personnel to ensure they can efficiently collect and share ADT data pertaining to multiple species in field and office settings. Software and hardware includes the USAHerds database utilized by the Agency, computers, electronic CVIs, and electronic methods to capture and record official identification.
- Accurately and efficiently complete assigned Trace Performance Measures in EMRS2
- Monitor ICVI data quality
- Update Vermont import rules and statutes to comport with ADT standards
- Maintain internal IT software and hardware infrastructure for all animal health section personnel to ensure they can efficiently collect and share ADT data pertaining to multiple species in field and office settings
- Only utilize electronic applications with data standards that are compatible with USAHerds and federally maintained animal health databases. Enhance electronic tag distribution record system to allow for external stakeholders to enter information regarding distribution of tags to the end user

4.3 Animal disease traceability performance measures

ADT performance is measured by identifying the elapsed time between agency notification of an official ID number by another state or USDA in the context of an exercise or real trace, or by FDA in the context of a tissue residue investigation, and the identification of the implicated animal's farm of origin. In general, the baseline measure for successful tracebacks that occur wholly during weekday working hours is approximately 0.2 to 24 hrs. For those that occur wholly or partially on the weekends or that require outreach to livestock dealers, the baseline measure is generally increased significantly and can be up to three to four days. This is in part due to the Agency's lack of 100% electronic data prior to January 2010 and its dependence on external stakeholders' ADT records that may be in paper format and difficult to locate.

The Agency will continue to assess its ADT capabilities by completion of Trace Performance Measures as required by USDA that test the capabilities of animal health personnel to retrieve ADT data. TPMs activities measure the time it takes to answer four specific questions:

1. In what state was an imported animal officially identified? Vermont has a reference animal and must determine the State in which the animal was officially identified.
2. Where in the State was the animal officially identified? Vermont is the state where a reference animal was officially identified, and we must confirm that the official identification number was issued within our jurisdiction and that we have contact information for the person who received that identification device.
3. From what State was the imported animal shipped? Vermont is the state that receives a reference animal and must determine the state from which the animal was moved interstate into its jurisdiction and notify that State of the reference animal's official identification number.
4. Premises in your state the animal was shipped from when shipped interstate.

In 2017, USDA provided VT with the 2016 TPM ratings for TPMs 2-4. Vermont received Excellent ratings for all categories except for TPM 3, (% successfully completed), which was rated at 89% and Acceptable. Vermont exceeded the quotas for TPMs 2-4. No information was received regarding TPM 1. To complete traces, Vermont relies upon CVI and ID information that is entered into USAHerds, along with phone calls to stakeholders who have received tag information or completed CVIs. When traces rely upon contacting a livestock dealer, the elapsed time may be longer due to paper records and the limited cell reception throughout Vermont.

4.4 Data requirements

Location Identifiers: The USAHerds software program provides for the automated generation of an eight-digit unique location identifier for each premises entered into the database as long as a physical address is included in the data set for the premises. This address is also geo-coded in the database. The alpha-numeric format for the location identifiers is consistent with current ADT standards and employs the format "VT123456", where the numeric fields are unique. USAHerds is also able to communicate with the federal allocator to assign a federal premises ID.

4.4.1 Official Animal ID

Vermont has and will continue to rely heavily on wide use of official individual metal ear tags that begin with “13”, designating Vermont, and that are compatible with ADT standards. Veterinarians, licensed dealers and DHIA technicians obtain these tags directly from the Agency’s animal health office and have applied them while performing regulatory disease work or other functions on the farm. Historically, they were required to return tag report forms (identifying tag number or series, producer name, address and phone) to the Agency’s animal health office in a timely manner, and those paper forms were stored internally. Prior to 2010, the Agency maintained a log book that linked the veterinarian with the series of tags dispensed to him/her. Since 2010, all distributed ear tags have been logged into the USAHerds database and are tied to the external stakeholder recipient in that system. Because there was widespread stakeholder noncompliance with the mandate to return completed tag reports to the animal health office and the Agency did not have a storage method that was easily searchable, that practice was discontinued. Prior to 2016, the USAHerds database did not accommodate documentation of multiple tag recipient layers (e.g. the veterinarian and the producer/end user). However, that capability was deployed in 2016 and tag traces performed in USAHerds allow the user to see multiple distribution events for a tag number. Agency personnel still require that all accredited veterinarians and licensed dealers maintain the completed tag distribution records in an easily searchable format within their offices and that they make this information available to the Agency animal health office if requested. Beginning in 2012, the Agency began dispensing tags directly to producers upon their request as long as their premises were in the USAHerds database. As is the case with tags dispensed to veterinarians, instructional paperwork accompanies the tags, including mandates that the dispensed tags only be applied to animals under the recipient’s ownership, and producers receiving tags are required to sign a producer agreement that holds them to ADT standards. This tag distribution practice commenced after sufficient outreach and instruction was provided to producers. Necessary messaging around tag use and distribution is accomplished through direct interaction with producers at fairs, the Vermont Farm Show and other industry events. Additionally, information was published in the Agency’s Agriview publication and was included with producer milk checks. The Vermont Agency of Agriculture includes the necessary applicator with the producer’s initial order of tags.

4.4.2 Tag Categories

Categories of tags and associated alpha-numeric sequences currently employed in Vermont include the following. The letters in bold are consistent and unique identifiers for that category of tag.

- Vaccination – 13**V**AA0001 – orange
- Producer issued – 13**P**AA 0001 – silver
- Veterinary issued – 13**A**AA0001 – silver
- Slaughter – 13**S**AA0001 – green and lack USDA shield
- Dealer issued – 13**D**AA0001 – silver
- Johne’s vaccination – 13**J**AA0001 – yellow
- Cervid – 13**C**DV0001 – yellow and lack USDA shield. Use of these tags have been replaced with RFID tags.
- DHIA – 13**W**AA0001 – silver
- Dairy One – 13**X**AA0001 – silver
- Genex – 13**Y**AA0001 – silver

- The Agency provides both NUES tags and RFID tags for swine, depending on what the producer would prefer. DHIA and Diary One now order and receive tags directly from the USDA warehouse and provide the Agency monthly reports of on-farm tag distribution.

4.4.3 Required Interstate Movement Documents

Thirty-day ICVIs and import permits are required for entry of all livestock into VT, except for horses which are exempt from the import permit requirement. Import permits are generated in USAHerds once an ICVI has been issued in the state of origin. Ultimately, the ICVI and associated import permit are linked in the database to one another and to the consignee premises. Vermont encourages the submission of electronic ICVIs in lieu of paper documents. In 2014, to encourage a change to electronic documents use, the Agency implemented a fee for veterinary purchase of paper booklets of CVIs and Coggins forms. For those documents that are submitted as paper copies, pertinent data fields are entered into USAHerds and then the paper copy is scanned and uploaded to the premises file in the database. The paper copy is then discarded. The goal continues to be to eliminate the submission of paper movement documents and implement a system whereby all data fields from electronic ICVIs can be automatically uploaded into USAHerds. To further this goal, the Agency has provided various forms of electronic CVIs (eCVI pdf, mCVI) and encourages the use of on line companies such as Global VetLink. Over the past 3 years, more Agencies are providing CVIs to states via email, versus mailing paper copies, increasing the speed of data exchange. Use of the Civet application with USAHerds has also increased data accuracy and speed of entry.

4.4.4 Data Sharing

The data referenced in this section may be shared with other states and with USDA if that sharing is necessary for a SAHO or federal animal health official to complete an epi or other regulatory traceback, or if it is required for regulatory disease program compliance. In all cases, this information will be shared in electronic report format and in a manner consistent with the needs of the requesting SAHO or federal official.

4.5 Information technology plan

As referenced elsewhere in this document, a successful ADT program depends heavily on adequate IT resources, both for internal use and those that can be made available to external ADT stakeholders. Vermont already utilizes the USAHerds database for management of its traceability records. This system, although currently adequate, must be maintained and updated over time to allow Vermont to remain current and compatible with emerging enhancements that benefit ADT. Additionally, Vermont must maintain an adequate IT staff to manage these current and emerging programs. Finally, as stated in other portions of this document, the Agency must continue to make available to its external ADT stakeholders tools that allow for effective storage, sharing and updating of official ID distribution records, CVI records and other ADT-pertinent data. Ideally, all veterinarians would possess tools that allow them to electronically capture ID data and complete eCVIs. Some of the cost projections associated with these components are known at this time and others are not. Some of those that are known are referenced below, along with the CY years with which they correlate:

- Replacement of laptop computers for animal health personnel and acquisition of document scanners to support electronic records management. Staff laptops are on a three-year schedule and are due to be replaced in 2020.
- USAHerds maintenance agreement allowing for 100 service hours annually by vendor and one new product release annually – CA cycles 2018, 2019 and 2020. The maintenance agreement is \$33,000 per year.

Other IT related necessities include those tools and database enhancements associated with providing resources to stakeholders that will facilitate their ability to store, maintain and distribute ADT pertinent data in an electronic format and share that data automatically with USAHerds. The Agency is in ongoing correspondence with other state users of USAHerds and with the vendor during monthly user group conference calls and annual workshops. Due to lack of federal resources to support data sharing, the state will provide personnel to carry out these initiatives and support through General Fund money.

4.6 Resource requirements

Since a robust ADT program depends largely on comprehensive IT capability, the Agency may need additional IT expertise during FY 2018, 2019 and 2020 to continue to effectively implement the program. The Agency currently has one systems developer to serve the needs of a 120-member staff. To take advantage of emerging systems that help automate the capture, storage and transfer of ADT data for internal and external stakeholders, additional IT expertise within the Agency might be needed. It will also be necessary for internal IT staff to communicate with IT experts within USDA APHIS VS to successfully integrate data systems across agencies, so capable experts will also have to be retained at the federal level.

4.7 Organizational needs

Currently, there is not an option to acquire additional IT expertise within the agency as there is insufficient funding appropriated for the Agency in the annual budget. Cross training other agency employees to perform these functions is also not feasible due to lack of appropriate expertise and already full workloads.

4.7.1 Executive support

The ADT initiative is supported in concept by internal agency administration and the day to day responsibility for successful implementation of the ADT program in Vermont has been delegated to the office of the state veterinarian. This delegation of authority is appropriate given that the employees with subject matter expertise of ADT-pertinent issues reside in that office. The state veterinarians brief internal administration on implementation progress during weekly management meetings that engage all upper management personnel in the Agency. Additionally, pertinent ADT information is communicated to the Secretary of Agriculture and to the Governor's office in a weekly report compiled in part by the state veterinarian/director and the assistant state veterinarian with input from all animal health employees. Successful implementation of the ADT program also remains listed as a priority in the Agency's strategic plan that has been approved by the Secretary of Agriculture.

4.7.2 Coordination and oversight procedures

As previously stated, the implementation and maintenance of a robust ADT program in Vermont is the responsibility of the Office of the State Veterinarian. Responsibilities regarding implementation of this plan are generally included as part personnel job descriptions or assigned during planning meetings. Personnel in this office work closely with the VMO, Vermont AHTs and the APHIS Assistant Director to ensure that compatibility across the New England states is maintained. In addition to movement throughout New England, a large number of livestock, including bob calves and swine, also move between NY, PA, and VT. Therefore, collaboration with those State Veterinarians and their AD is also critical. In 2015, a multi-state agreement between NY and VT and other surrounding states was written that allows for the movement of bob calves without the otherwise required CVI documents to avoid animal welfare consequences. At the state level, depending on the need, the ADT stakeholders previously referenced and who form the “virtual advisory group” can be mobilized independently of one another and at the discretion of state and federal authorities. Outreach to and education of these stakeholders takes place on a consistent and ongoing basis as different program needs arise, and on occasion these stakeholders assist in messaging to colleagues, clients and customers on behalf of the state veterinarian.

4.7.3 Policy

The Vermont Agency of Agriculture’s rule #98074 (effective 12/8/98), *Rules Governing the Importation of Domestic Animals, Including Livestock and Poultry*, provides the requirements for importation of livestock into Vermont. Since the implementation of ADT in Vermont, the terms in this rule need to be updated to better clarify livestock movement requirements that are consistent with ADT principles. It would be ideal to initiate this after the federal TB/Brucellosis rules are amended and Vermont tentatively plans accomplish this task in the next three-year cycle. The process could take up to a year and will cost approximately \$2,500. In the previous three-year cycle, the Agency updated statutes relating to animal health, which resulted in the passage of ACT 30 and alignment of intrastate ID movement requirements with the federal ADT regulation.

4.7.4 Staffing

As previously noted, the staff that continues to implement the ADT initiative in Vermont is located primarily in the office of the state veterinarian and includes veterinarians, administrative support staff and animal health field personnel. The IT expertise within the Agency is housed outside of the animal health office, and there is insufficient staffing in all categories to maintain a designated ADT-only personnel roster. As a result, the ADT-related responsibilities of the animal health staff are carried out in conjunction with other animal health regulatory responsibilities. All members of this team are paid out of the state general fund and agency special funds, except when performing ADT duties as outlined in the ADT cooperative agreement workplan. When performing those duties in the office and in the field, a portion of employee time is paid out of the cooperative agreement up to the cap amount. In consultation with the ADD, VMOs and AHTs stationed in Vermont are regularly mobilized to carry out outreach, technical assistance, and enforcement activities related to ADT.

4.7.5 Budget requirements

On a consistent basis, there is insufficient federal funding available to cover the cost of successful implementation and maintenance of a robust ADT program in Vermont. The federal funding that is

expected to be available through the next three years of cooperative agreements offsets some of the cost, and the remainder of the cost is covered by Vermont's General Fund. Cost sharing is achieved through these two vehicles, and the state makes in-kind contributions through the providing of state animal health employees to carry out ADT-related responsibilities.

During CA yr. 2018, the following ADT-related cost estimates can be anticipated:

- a. \$45,766 for data entry and CVI review (based on 30 hrs/wk at hourly rate of \$27.13 and fringe rate of \$7.33)
- b. \$65,088 for outreach and education of ADT stakeholders and related tasks (based on 24 hrs/wk at hourly rate of \$37.24 and fringe rate of \$19.26)
- c. \$4,000 for equipment
- d. \$10,000 for travel, including trainings and workshops
- e. \$33,000 for annual USAHERDS maintenance agreement
- f. \$10,000 for unknown costs for necessary IT enhancements to provide referenced tools for stakeholders

Total cost for CA cycle 2018 = \$167,854

During CA yr. 2019, the following ADT-related cost estimates can be anticipated:

- a. \$52,603 for data entry and CVI review (based on 30 hrs/wk at hourly rate of \$28.76 and fringe rate of \$7.77)
- b. \$68,993 for outreach and education of ADT stakeholders and related tasks (based on 24 hrs/wk at hourly rate of \$39.47 and fringe rate of \$20.42)
- c. \$4,000 for equipment
- d. \$10,000 for travel, including trainings and workshops
- e. \$33,000 for annual USAHERDS maintenance agreement
- f. \$10,000 for unknown costs for necessary IT enhancements to provide referenced tools for stakeholders

Total cost for CA cycle 2019 = \$178,596

During CA yr. 2020, the following ADT-related cost estimates can be anticipated:

- a. \$55,728 for data entry and CVI review (based on 30 hrs/wk at hourly rate of \$30.46 and fringe rate of \$8.24)
- b. \$78,888 for outreach and education of ADT stakeholders and related tasks (based on 24 hrs/wk at hourly rate of \$41.83 and fringe rate of \$26.65)
- c. \$10,000 for travel, including trainings and workshops
- d. \$12,000 for equipment including new computers
- e. \$33,000 for annual USAHERDS maintenance agreement
- f. \$10,000 for unknown costs for necessary IT enhancements to provide referenced tools for stakeholders

Total cost for CA cycle 2020 = \$199,616

Please note: these figures do not include the cost associated with time contributed to this project by agency veterinarian(s) and IT staff.

4.7.6 Outreach

Outreach to all ADT stakeholder groups focuses on the Agency's expectation that Vermont professionals, businesses, licensees and producers engaged in livestock movement activities maintain all ADT data in an easily searchable format and in a manner and for a period of time that is consistent with ADT standards.

4.7.6.1 *Accredited veterinarians*

Buy-in from accredited veterinarians is critical to the success of the ADT program in Vermont. One on one educational meetings between agency animal health personnel and accredited livestock veterinarians began in the summer of 2011 and are ongoing, usually for purposes of making them aware of electronic records options as those become available. Even though the initial educational meetings have been completed, reviews of the program and periodic Q&A sessions have been necessary. Written reminders of ADT standards are sent to practices as needed (e.g. when a noncompliant CVI is submitted), and spot checks of records in clinics are made to answer program questions that veterinarians and admin support staff may have. Publications such as the Agency of Agriculture's quarterly veterinary newsletter and the Vermont Veterinary Medical Association newsletter are used to disseminate information, and email correspondence is disseminated through the Agency-maintained veterinary distribution list. Veterinarians periodically put ADT information in practice newsletters or post the same on their websites to educate their clientele about the ADT requirements. Veterinarians use the following for ADT record keeping: hard bound books, existing practice management software and new software. Often, the veterinarians will help to populate these records by filling out tag report forms on farms and submitting them to clerical staff to enter into the database(s) or book(s). The Agency must continue to work diligently to make available to veterinarians at no or very little cost resources for use of eCVIs and iCVIs that comport with national data standards established by the state-federal-industry working group developed by USAHA. The use of these systems ensures that electronic records utilized in the field can be automatically uploaded into multiple databases and shared with state and federal animal health partners. Multiple Vermont veterinary practices already utilize electronic animal movement records and increasing the use of these electronic tools will continue to be a focus of the Agency.

4.7.6.2 *Livestock markets*

Vermont currently has one livestock market auction, and an animal health employee performs a site visit on a weekly basis to review records, which are generally easily accessible during operational hours. Questions about ADT can be answered during those visits, and the Agency has spent considerable time providing formal outreach to this facility. Additionally, Vermont has several "commingling" facilities that accept in state and out of state calves and cull animals for shipment to slaughter, although animals are not bought and sold at these facilities. Traceability orientation meetings with the owners/managers of these facilities were held in 2012, and communication is ongoing during periodic visits made by Agency Animal Health Specialists, generally during inspections or when providing ADT supplies. In all cases, the importance of accurate and reliable records management pertaining to ADT data is stressed. It may become necessary to facilitate the acquisition of RFID tags and stationary or wand readers to increase the efficiency of ID captured at

markets and comingling stations. Vermont may seek cooperative agreement funding in support of this effort.

4.7.6.3 Slaughter facilities

Several real-life animal traces in Vermont have highlighted the fact that most inspected slaughter facilities in the state are not collecting official ID at slaughter as is required by the APHIS/FSIS MOU and is necessary for true bookend animal disease traceability. In part, the reason for this is because steel NUES tags are the primary form of official ID used in VT and it is logistically difficult for facility personnel to collect the info due to the line speed, physical layout of the facility, and/or language barriers between facility management and personnel. This lack of information capturing represents a significant gap in the bookend approach to traceability and needs to be improved. The office of the state veterinarian has attempted to work closely with FSIS, APHIS and plant managers to improve this situation. It has been noted during recent visits to slaughter plants regarding the ACT 30 outreach, that some plant personnel do collect and write down animal tag numbers, official and/or farm tags. Per certain plants, this information is essential for financial purposes and links animal weight with an animal identification and an owner.

4.7.6.4 Industry as a whole

As previously stated, the livestock industry in VT consists primarily of dairy and small ruminants with beef, poultry and swine increasing in significance. The hobby and competitive equine industries are also significant. The outreach to these sectors began in 2012 and is ongoing. Personal outreach occurs through speaking engagements at producer group meetings, at fairs, at the Vermont Farm Show and other agricultural events. Occasionally, the executive committees of organizations like the Vermont Farm Bureau and NOFA are contacted directly and asked to share pertinent information with their respective memberships. University of Vermont Extension Service, staff and listservs, is utilized to disseminate information pertinent to the producers with whom they interact. The Animal Health Section's page on the Agency website is continuously updated with ADT information and resources. Some grass roots organizations are generally strongly opposed to programs like ADT and the Agency strives to address their concerns and the associated compliance challenges with honesty and transparency.

4.8 Monitoring and reporting interstate movement activity

Electronic reports including the number of animals and shipments moving interstate can be generated from USAHerds in an excel spreadsheet format. The data can be partially verified by cross referencing the import permit (containing hypothetical imports) with the CVIs (containing theoretical actual imports). Having full confidence that the animals listed on a CVI came into the state as intended will not be possible as there is not enough staff capacity to contact each of the consignees by phone or in person for confirmation. All CVIs are entered into the USAHerds database and the majority are reviewed for non-compliance. USAHerds has the capability to generate reports capturing the following data that must be reported to USDA on a quarterly basis to meet cooperative agreement requirements:

- Number of ICVIs and other interstate movement documents created within Vermont on a year-to-date basis for move-out animals.

- Number of ICVIs and other interstate movement documents received for move-in animals.
- Number of animals by species and class for move-in events associated with ICVIs and other interstate movement documents, indicating the number of animals officially identified and the number not officially identified.
- Number of animals by species and class for move-out events associated with ICVIs and other interstate movement documents, indicating the number of animals officially identified and the number not officially identified.
- Volume of distribution for each official identification device issued by Vermont state officials to external stakeholders.

5 TRACEABILITY IMPLEMENTATION

5.1 Ranking of priorities

To efficiently implement a comprehensive ADT program in VT and to carry out enforcement activities, the goals listed earlier in this document must be paired with objectives and prioritized over multi-year period. Some of the objectives listed will be ongoing and others can be completed in shorter time spans. The specifics pertaining to this timeline, and the method by which each objective will be conducted or approached, are included after each bullet point, where applicable.

5.2 Implementation of Objectives

5.2.1 Continue to target, develop, and implement outreach regarding data quality and processing for animal health information forms, as well as other ADT standards

- This objective will be ongoing throughout the 2018-2020 CA cycle.
- The Agency will continue to provide outreach and technical assistance regarding the identification requirement for intrastate movement of livestock, new as of July 2017.
- The Agency will continue to foster a strong working relationship with DMV enforcement to collaborate on ADT compliance activities.
- The Agency will ensure that it has accurate after-hours contact phone number and email addresses for external ADT stakeholders.
- The Agency will codify in writing existing verbal agreements with other states related to interstate movement of livestock in a manner that comports with the ADT rule and ensures traceability of covered livestock.
- The Agency will work collaboratively with USDA APHIS, FSIS and with Vermont slaughter facility owners to improve the recording and capture of official ID of covered species at the time of slaughter.

5.2.2 Continue to identify, implement and make available to internal and external stakeholders at no or minimal cost, relevant IT systems that facilitate the electronic sharing of livestock disease surveillance and animal movement data to reduce duplicate data entry and information capture

- This objective will be ongoing throughout the 2018-2020 CA cycle.
- The Agency will strive to encourage use electronic movement certificate options that adhere to national data standards as established by USAHA. Current options include:
 - mCVI
 - CO/KS PDF eCVI option,

- eCVIs options offered through companies such as GVL
- 5.2.3 Continue to identify and adopt data management practices that allow for minimization of paper ADT records and facilitate transition into a fully electronic records management system
 - This objective will be ongoing throughout the 2018-2020 CA cycle.
 - The Agency will work with the USAHerds user consortium to ensure that the database is able to upload second tier tag distribution information provided by veterinarians.
 - Similarly, the Agency will ensure that veterinarians are aware of such tools associated with eCVI applications and are able to utilize them.
- 5.2.4 Provide tools to external stakeholders that will improve their ADT animal ID and record keeping compliance
 - This objective will be ongoing throughout the 2018-2020 CA cycle.
 - The Agency will continue to provide ID tags to producers, dealers, veterinarians and market owners as needed and will require that producers sign an agreement prior to tag receipt ensuring that they will adhere to ADT requirements.
 - The Agency will make RFID tags available to certain stakeholders beginning with the 2018 CA cycle.
 - The Agency will update the CO/KS eCVI pdf and make it available to external stakeholders in 2018.
- 5.2.5 Input data into appropriate systems
 - This objective will be ongoing throughout the 2018-2020 CA cycle.
 - The Agency will continue to receive annual upgrades of USAHerds and improvements to the CIVET application.
 - The Agency will continue to download tag distribution information from the USDA AIN system and enter the info into Herds. The Agency encourages USDA to develop a means for automatic data transfer and upload into state systems, such as USAHerds.
- 5.2.6 Shorten retrieval time of available traceability information, internally and externally
 - Continuously enhance or update internal IT software and hardware infrastructure for animal health section personnel to ensure they can efficiently collect and share ADT data pertaining to multiple species in field and office settings.
 - Software and hardware includes the USAHerds database utilized by the Agency, computers, electronic CVIs, and electronic methods to capture and record official identification.
- 5.2.7 Monitor ICVI data quality
 - This objective will be ongoing throughout the 2018-2020 CA cycle.
 - Staff review CVIs as they come into the office via mail or email, while logged into GVL, or after they have been automatically uploaded into USAHerds (as is the case with the mCVI).
- 5.2.8 Update Vermont import rules to comport with ADT standards
 - This objective was expected to be completed during the 2015 CA cycle. Instead, the Agency focused on updating relevant animal health statutes, which resulted in Vermont statutes comporting with ADT standards and the new requirements for official identification of livestock with intrastate movement.

- 5.2.9 Maintain internal IT software and hardware infrastructure for all animal health section personnel to ensure they can efficiently collect and share ADT data pertaining to multiple species in field and office settings
- **Computer replacements and updates are on a three-year cycle.**
 - **USAHerds upgrades occur on an annual basis.**
- 5.2.10 Only utilize electronic applications with data standards that are compatible with USAHerds and federally maintained animal health databases. Enhance electronic tag distribution record system to allow for external stakeholders to enter information regarding distribution of tags to the end user.