

**REPORT OF THE VIRGINIA-MARYLAND
REGIONAL COLLEGE OF VETERINARY
MEDICINE**

Shortage of Large Animal Veterinarians in Virginia (HJR 730, 2009)

**TO THE GOVERNOR AND
THE GENERAL ASSEMBLY OF VIRGINIA**



HOUSE DOCUMENT NO. 7

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Shortage of Large Animal Veterinarians in Virginia

Report to the Governor and Virginia General Assembly
in Response to
House Joint Resolution No. 730

Submitted by:
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PREFACE

House Joint Resolution No. 730 directed the Virginia-Maryland Regional College of Veterinary Medicine (VMRCVM) to study the shortage of large animal veterinarians in the Commonwealth. The study was to include a projection of the supply and demand for large animal veterinarians in Virginia, review the student applicant pool and the efficacy of increasing the student capacity of the College, propose incentives that would increase the student pool of large animal veterinarians, review the effect student debt burden has on the pool, and recommend alternatives to ameliorate any shortage in supply versus demand.

Dr. Gerhardt Schurig, Dean of the College, established the following Study Group under the Chairmanship of Dr. William Swecker, Jr. in response to the Resolution:

- Drs. K. Adams, J. Heizer, T. Massie, and M. McCall, practicing large animal veterinarians
- Mrs. K. Kyger Frazier of the Virginia Agribusiness Council
- Mrs. L. Reames of the Virginia Farm Bureau
- Mr. C. Kennington of the Virginia Economic Development Partnership
- Ms. E. Moran of the Virginia Department of Business Assistance
- Dr. R. Wilkes, State Veterinarian
- Dr. J. Murphy, State Public Health Veterinarian
- Mr. L. Pemberton, dairy farmer
- Drs. D. Hodgson and W. Swecker, Jr. of the Department of Large Animal Clinical Sciences, VMRCVM
- Ms. K. Anderson, veterinary student
- Dr. W. Snizek, Professor of Sociology, Virginia Tech
- Mr. J. Poole, Principal of Common Sense Strategies
- Dr. R. Daugherty, Director of the Virginia Tech Business Technology Center

The Group received assistance from:

- Mrs. L. Fornash, Director of State Government Relations, Virginia Tech
- Mr. P. Sforza of the Center for Geospatial Information Technology, Virginia Tech.

Dean Schurig served as an ex-officio member of the Group.

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SHORTAGE OF LARGE ANIMAL VETERINARIANS IN VIRGINIA

EXECUTIVE SUMMARY

Food and fiber production is critical to the welfare, security and future of the United States and the Commonwealth of Virginia. The number of individuals supporting this system, including veterinarians who provide health care to the associated animals, is declining nationwide. A moderate to severe shortage of food animal veterinarians in private and public sectors over the next 20 years has been predicted. To that end, the 2009 Virginia General Assembly passed HJR 730. The resolution requested the Virginia-Maryland Regional College of Veterinary Medicine lead a study to review the current and projected shortage of food animal veterinarians in the Commonwealth and make recommendations to alleviate the shortage.

Key Findings

- Multiple regions of the Commonwealth, broadly described as Southside, Central, and far Southwest Virginia have potential shortages of food animal veterinarians.
 - The availability of food animal veterinarians in the Commonwealth is highest in areas with high cattle density, especially dairy cattle; these regions are well-served today
 - Rural regions tend to be served by multi-species practices or practitioners, which adds to the complexity of the business model and expertise needed by veterinarians serving these regions
 - Rural veterinary practices that serve distributed farming operations have difficulty becoming and remaining profitable
 - The current shortage, especially in rural areas, will worsen unless such practices can be made economically viable
- The lack of rural medical professionals is not unique to the veterinary profession; similar shortages exist in human medicine.
 - Rural development depends on the provision of quality health care, including veterinary medicine
 - Rural professionals tend to come from rural backgrounds; thus, recruitment and development of those individuals in their communities is essential
- Public health depends on veterinary professionals that are active in the private and public sectors throughout the Commonwealth. The human health risks from rabies, brucellosis and bovine tuberculosis have been dramatically reduced by the actions of veterinarians. Conversely, severe acute respiratory syndrome (SARS), monkey pox, and influenzas demonstrate that pathogens continue to cross species barriers and continue to place the public at risk.

- Many young veterinarians are burdened with a significant debt load after graduation but the debt load is not unique to food animal veterinarians; it is a burden for all veterinary, human medical, and dentistry students after graduation. The ability to service this debt has direct influence on the choice of jobs after graduation.

Potential Solutions

Solutions to address the current and projected shortage of food animal veterinarians need to be varied and tailored to the location. In addition, flexibility and creativity are to be encouraged. In simple terms, one statewide solution will not solve this challenge.

The long term availability of large animal veterinarians in rural, underserved areas of the Commonwealth will depend on

- Veterinary students who desire to work with livestock in rural Virginia
- An adaptive veterinary curriculum that provides the skills, knowledge, and mentorship necessary to succeed in rural practice,
- An economically viable livestock industry that supports rural food animal veterinarians

The Study Group proposes the following solutions:

- To address the shortage of food animal veterinary practices in the Commonwealth, localities, organizations and businesses need to
 - Encourage veterinary access to economic development initiatives such as local Industrial Development / Economic Development Authority Assistance and business parks
 - Encourage veterinary access to grants from the Tobacco Indemnification and Community Revitalization Commission in eligible rural communities
 - Provide business mentorship for rural veterinary practices
- Increase state funding to support growth and expansion of the Virginia-Maryland Regional College of Veterinary Medicine to serve a larger student body
- Legislative and Executive support for ongoing federal initiatives
 - The Federal Veterinary Medical Loan Repayment Program that was authorized by the National Veterinary Medical Service Act
 - HR 3519, S1709: Veterinarian Services Investment Act. Introduced 7/31/2009. Congressman Bob Goodlatte (VA-6) is a cosponsor. This bill would establish a grant program to promote efforts to develop, implement, and sustain veterinary services
 - HR 2999: Veterinary Public Health Workforce and Education Act. Introduced 6/23/2009. This bill would establish fellowships for on-the-job training of veterinarians in food systems security and public health and increase faculty teaching in veterinary public health

1.0 Introduction

1.1 House Joint Resolution No. 730

Food animal veterinarians support America's livestock and meat industries and through their participation, help ensure the safety and security in the U. S. food system. The shortage of approximately 15,000 veterinarians projected by the U.S. Bureau of Labor Statistics over the next 20 years is a major concern. House Joint Resolution No. 730 was passed to address this issue in the Commonwealth of Virginia. It specifically requested the Virginia-Maryland Regional College of Veterinary Medicine (VMRCVM) to study the effect of the projected shortage in Virginia and:

- Project the supply and demand for large animal veterinarians in Virginia; to include regions of the Commonwealth
- Establish a profile of applicants to the college of veterinary medicine
- Determine the efficacy of increasing the VMRCVM's student capacity
- Propose incentives to encourage students to choose careers in veterinary medicine in general and large animal practice in particular
- Review the salary and working conditions of large animal veterinarians relative to the debt burden of recent graduates
- Ascertain the causes of the shortage and recommend immediate and long-term alternatives to ameliorate this shortage
- Consider other factors that may influence the practice/career path chosen by veterinarians

The Virginia General Assembly requested that the Study Group include representatives of the Virginia Farm Bureau, Virginia Agribusiness Council, Virginia Veterinary Medical Association (VVMA), Virginia Department of Agriculture and Consumer Services (VDACS), Virginia Department of Business Assistance (VDBA), Virginia Economic Development Partnership (VEDP), and the State Veterinarian. Dr. Gerhardt Schurig, Dean of the VMRCVM, assigned Dr. William Swecker, Jr. from the Department of Large Animal Clinical Sciences as Chair of the Study Group; Dr. Schurig asked the following individuals to also serve on the Study Group:

- Ms. Keelan Anderson, VMRCVM Student, Class of 2011
- Dr. Kent Adams, Doctor of Veterinary Medicine (DVM), Appalachian Veterinary Services (large animal private practice), VVMA member
- Dr. Richard Daugherty, Director, Virginia Tech Business Technology Center
- Mrs. Katie Kyger Frazier, Vice President—Public Affairs, Virginia Agribusiness Council
- Dr. John Heizer, DVM, Mid-Maryland Dairy Veterinarians (large animal private practice)
- Dr. David Hodgson, DVM, Head, VMRCVM Department of Large Animal Clinical Sciences

- Mr. Charles B. Kennington, Economist, Virginia Economic Development Partnership
- Dr. Thomas Massie, DVM, Rose Hill Veterinary Practice (large animal private practice) and President of Virginia Veterinary Medical Association (VVMA)
- Dr. Melinda McCall, DVM, Food Animal Veterinarian, President, Virginia Academy of Food Animal Practitioners and Director of VVMA
- Ms. Elizabeth J. Moran, Director of Legislative and Community Affairs, Virginia Department of Business Assistance
- Dr. Julia Murphy, DVM, State Public Health Veterinarian, Virginia Department of Health
- Mr. Leigh Pemberton, dairy farmer, Hanover County, Virginia
- Mr. Jay Poole, Principal, Common Sense Strategies and member of the Board of Trustees, Center for Rural Virginia
- Mrs. Lindsay Reames, Assistant Director of Governmental Relations, Virginia Farm Bureau
- Dr. William Snizek, Alumni Distinguished Professor, Department of Sociology, Virginia Tech
- Dr. Richard Wilkes, DVM, State Veterinarian, Virginia Department of Agriculture and Consumer Services

Dean Schurig served as an ex-officio member of the Group.

The Group was assisted by:

- Mrs. Laura Fornash, Director of State Government Relations, Virginia Tech
- Mr. Peter Sforza, Center for Geospatial Information Technology, Virginia Tech

1.2 Veterinary Profession

The American Veterinary Medical Association (AVMA) classifies positions held by veterinarians by whether they are in private practice or are considered public or corporate employees. It further segments private practice by the animals served:

- Food animal, exclusive; previously named large animal, exclusive
- Food animal, predominant; previously named large animal, predominant
- Small animal, exclusive
- Small animal, predominant
- Mixed animals
- Equine

Per the Veterinary Practice Act of the Commonwealth, a graduate veterinarian must have a current license in the Commonwealth to practice veterinary medicine. The veterinarian must practice in either a Full-Service Facility which provides surgery and encompasses all aspects of health care for small and large animals or in a Restricted Facility which is any facility or mobile establishment, veterinary hospital, animal hospital or premise out of which the scope of veterinary practice is limited.

Nationwide, more than 75% of veterinarians in private practice treat small or companion animals; while the remaining 25% serve in equine, food animal or mixed animal practices.

There are also veterinarians who work exclusively in food safety and inspection and within the public health sector. These veterinarians work with slaughtering and processing plants to enforce government regulations regarding food purity and sanitation. They also work along the nation's borders examining imports and exports of animals and animal products.

The current study focuses on

- large animal veterinary practices (exclusive and predominant) focused on serving food animals
- mixed animal practices

For the Commonwealth, these veterinarians spend the majority of their time with cattle, both dairy and beef, and a smaller portion of their time with sheep, swine and poultry. In areas of Virginia with high cattle density, food animal veterinary services are usually provided by a group practice of several food animal exclusive veterinarians. In other regions, a single food animal exclusive veterinarian with a mobile unit (Restricted Facility) may serve multiple counties. In a third model, the food animal veterinarian may practice in a mixed animal Full Service Facility as well as travel to farms as required to see food animals. The Study Group considered all of these practice options in its review.

2.0 Projected Shortage of Veterinarians and Factors Affecting the Supply of Food Animal Veterinarians

2.1 National Projections

The veterinary profession reviews the demand for new veterinarians about every ten years. The latest study, completed in 2006, used the Delphi approach that bases forecasts on judgments and feedback gathered from industry experts. This latest review included the expected consequences of bioterrorism and food supply concerns raised in response to 9/11. The conclusions were:

- Public concern with respect to food safety, zoonotic diseases, bioterrorism, animal welfare and animal health has changed previous demand predictions for food animal veterinarians
- Limited exposure of students of veterinary medicine to the food animal industry and the lack of externships in the industry are causing fewer students to select a career servicing food animals
- A perceived lack of demand for food animal veterinarians that developed in the late 1990s is also causing fewer students to select a food animal career

The study projected a 2-7% shortage of food animal veterinarians in various market segments for the period 2004-2016 based on increased demand (table below)

Projected Supply and Demand for Food Animal Veterinarians, 2004-2016

Market Segment	Demand Increase	Shortage
Small Ruminant	7.5%	2.2%
Beef	7.7%	5.4%
Dairy	8.3%	3.8%
Swine	10.0%	4.4%
Mixed Food Animal	10.7%	6.6%

Student capacity of U.S. veterinary schools has remained static for the past two decades therefore, additional capacity would be required to meet the projected shortfall in veterinarians. The Virginia-Maryland Regional College of Veterinary Medicine is currently developing a plan to increase its student enrollment by 35-40%; this would help alleviate the projected shortage in Virginia. Current plans for expansion of instructional facilities rely on the use of student fees for debt retirement.

Livestock producers in Tennessee were surveyed, also in 2006, to determine the current situation for food animal veterinarians in that state. Key conclusions were:

- 52 % of producers had experienced a delay in getting a veterinarian to come to the farm
- 41 % of producers had been told that a veterinarian would only treat animals transported to a veterinary facility

- 39 % of producers found that the veterinary service was more expensive than the value of the animal

These results confirm that some producers want veterinary services based on the value of the animal and do not want to pay for services based on the cost of the service, a result that is considered typical throughout the U.S.

2.2 Veterinary Student Demographics

The typical veterinary medicine college class in 2009 is 75% female and 25% male. This three-to-one ratio of females to males has been predominant for several decades. The working conditions commonly experienced by food animal veterinarians involve the examination and treatment of large animals in the field, conditions that some might consider daunting. However, graduates pursuing food animal practice careers at the Virginia-Maryland Regional College of Veterinary Medicine are 55-65+% female.

In addition there are students with a particular background that dominate food animal veterinary candidates. National studies of food animal students show that they

- Typically had a rural upbringing and a strong desire to return to a rural life
- Had significant exposure to herd/flock animals while in 4-H, Future Farmers of America or similar organizations
- Had worked for a food animal veterinarian during their youth

In addition, ~66% of first year students planning to work in the food animal segment grew up in a community of less than 10,000 people.

In Australia, veterinary students who grew up on farms with animals were found to be twice as likely to be working with farm animals during and after their college studies as those from other backgrounds. Additionally the abilities to relate to rural people and to fit into rural communities were identified as the most important qualities for success as a veterinarian in a rural practice.

Anecdotally, talented students from rural communities are frequently discouraged from pursuing veterinary medicine as other professional fields such as human medicine or law are considered more rewarding and will likely have fewer demands on time. This discouragement comes from guidance counselors, college professors, and even veterinarians. Students from urban and suburban regions have successfully entered food animal practice, but must learn about “farming” in its broadest sense. In addition, they must desire to live in a rural environment.

Food animal veterinary students believe that a career in the food animal segment would be intellectually challenging and allow them to fully utilize their veterinary medical knowledge. Interesting to the Study Group, they also:

- Place a high priority on relationships with other people
- Desire autonomy when making decisions in their job
- Have less concern for the material things in life

During their veterinary medicine studies, a student externship in the food animal industry typically solidified a student's choice to become a large animal veterinarian even though some college faculty discouraged such a choice.

Thus, two ways to increase the percentage of veterinary students selecting food animal practice would be to

- Encourage recruitment of talented students from rural areas who have participated in 4-H, FFA or similar organizations
- Encourage students, regardless of background, to work with food animal veterinarians during their veterinary study program

2.3 Student Debt Burden and Other Economic Factors

Even though veterinary colleges award scholarships and awards annually to students, the debt load of new graduates continues to increase, as shown in the table below. For comparison, graduates entering private practice in 2007 had a debt-to-starting-salary ratio of 1.9 for large animal graduates and 2.1 for mixed animal graduates; this ratio was, on average, 1.1 in 1989.

Debt at Graduation for Veterinary Students

	2006	2007	2008
All US veterinary graduates	\$100,805	\$106,959	\$119,803
VMRCVM graduates	\$74,940	\$100,937	108,278

Source: VMRCVM and AVMA

Starting salaries for 2006-2008 graduates, both nationally and for the Virginia-Maryland Regional college of Veterinary Medicine, are shown below:

Starting Salary for VMRCVM Veterinary Graduates

Practice Type	VMRCVM Graduates 2006-2008	All U.S. Graduates 2006-2008
Food Animal Exclusive	\$58,383	\$60,037
Food Animal Predominant	\$56,248	\$54,566
Mixed Animal Practice	\$53,361	\$55,394
Small Animal Predominant	\$58,598	\$59,109
Small Animal Exclusive	\$62,252	\$61,061
Equine	\$42,436	\$40,543
Advanced Education	\$26,703	\$26,811

Source: VMRCVM and AVMA

Although the salaries may differ both regionally and by practice type, none provide a base for easily paying off the debt burden. In addition, new graduates who rely on spousal support for debt management have limited opportunities for spousal employment in rural communities as

compared to urban environments. Additional sources of financial support would help veterinary students lower their debt burden and increase the veterinary student applicant pool, both quantitatively and qualitatively.

There are additional economic factors that must be considered by students considering/pursuing a food animal career. These students have two career choices:

- Become part of a large practice located in areas with high food animal density (i.e., areas with more farms and ranches). By their nature, areas with high animal and farm density support financially viable veterinary practices. Also, these practices have the financial resources to support the creation of new veterinary positions.
- Be prepared to travel extensively or establish a mixed animal practice, treating both large and small/companion animals. This may require additional equipment and resources; it is certainly more demanding professionally.

As is shown in the next section of this report, the shortage of food animal veterinary practitioners is most acute in areas with smaller farming operations. Smaller farming operations typically limit their use of veterinarians for economic reasons and require the veterinarian to spend more time traveling between chargeable activities than those serving larger operations. Therefore, it is more difficult to create/maintain a profitable veterinary practice in these more rural areas. As a result, rural food animal veterinarians creating a practice typically need to devote at least \$40,000 in their first year of practice to develop a client base. They also need to find funding for the required equipment and other items associated with starting a practice:

- Purchase of a truck
- Purchase of examination equipment
- Establishing a working inventory
- Funding of working capital

These require at least an additional \$50,000 or more.

Loan or grant programs that reduce this overall financial burden are needed to encourage graduates to consider starting or joining rural large animal practices. These practices are a business and thus a positive economic development tool for rural Virginia. These graduates will be more than likely inclined to pursue other options less financially demanding unless they have an overarching and personal commitment to a rural area.

Finally, the future economic viability of livestock enterprises in Virginia will drive the demand for veterinary services. On the negative side, the continued decline in the state dairy herd and conversion of farmland to other uses would lead to a suggestion of lower demand. Conversely, increased public interest in animal production systems and the growth of “Buy Local” may increase demand, especially for smaller operations.

2.4 Dilution of the Animal Health Services and Response Capability

The animal health needs of larger herds are served through several options. The farming operation may establish a relationship with a food animal exclusive DVM who provides routine animal examination and validates the veterinarian/client/patient relationship which is required by the Food and Drug Administration prior to administration or distribution of prescription pharmaceuticals. Large enterprises may also train employees to perform various technical tasks that historically were in the realm of the veterinarian, such as diagnosis and treatment of common diseases or minor surgical procedures. Pharmaceutical and feed companies also offer support to these large enterprises, including specialist veterinarians who travel to farms for consultation, either in collaboration with local practitioners or independently. In addition, pharmaceutical and biologics companies direct-ship pharmaceuticals and vaccines to large herd operations. These activities can decrease the viability of food animal practices.

Small and moderate sized herds have fewer options and are more dependent on the availability of local food animal veterinarians. These producers may need to perform some techniques themselves because of their isolation, such as extracting a calf from a cow with birthing difficulties; Virginia Cooperative Extension currently offers programs to help producers learn these skills. In addition, Cooperative Extension offers programs to improve the health status of animals; one example is the Virginia Quality Assured Feeder Calf Program. Decreased resources within Cooperative Extension are limiting these opportunities for training and education.

2.5 Rural Location

Students who plan to pursue the rural large animal career option typically had a rural upbringing and have a strong desire to return to a rural life. Regardless, students need to understand that:

- Such a practice will require increased demands for emergency services (i.e., it is not a 40-hour per week job typical of a small animal practice in an urban setting)
- His/her professional decisions will typically be in the field and made in front of an informed farmer; which requires an independence and confidence level beyond that needed in office settings with multiple veterinarians
- For a single person, there may be fewer opportunities to socialize and/or start a family

Externships with large animal veterinary practitioners that allow students to experience and confront these issues first-hand before making a final career decision help students understand both the advantages and concerns associated with a rural large animal practice. Such paid externship opportunities need to be expanded if the large animal veterinary practice demand of the future is to be adequately met.

2.6 Perceptions of Food Animal Veterinarians

A study conducted in 1976 by Drs. W. Snizek and C. Bryant of Virginia Tech on career decisions of veterinary students found:

- Students were frequently dissuaded from large and mixed animal veterinary medicine based on a perceived financial difference with other practices, even though such a difference did not actually exist
- There is a perception throughout the profession of lower professional prestige in large and mixed animal practices compared to small or companion animal practices

These perceptions continue today. To change these misconceptions, veterinary faculty, practicing large animal veterinarians, and livestock producers need to counter these perceptions with facts.

2.7 Public Health Concerns

In the past, federal programs that employed private practice veterinarians to test cattle for tuberculosis and brucellosis and to vaccinate heifers for brucellosis enhanced large animal veterinary incomes. Both diseases also infected humans and federal programs were established with the goal of eliminating public exposure to these diseases and improvement of livestock health. These activities provided an entrée for the veterinarian onto the farm and resulted in additional veterinary involvement in health programs in these herds. However, due to the success of these programs (i.e., the massive decline of these diseases) funding to the practitioner has been eliminated. As a result, an excellent check on the health of animal herds throughout the country, and especially in remote areas, has been lost. These programs also provided a financial supplement for rural veterinary practices. Therefore, its demise has created an additional financial burden on rural practices.

Virginia is an international gateway thus emergencies created by the accidental or malicious introduction of foreign animal diseases, like foot and mouth disease must be addressed quickly. The rural practice veterinarian is a critical component of the response team. Large animal veterinarians will also be needed if the Tidewater region experiences a Class 5 Hurricane. A continued decrease in rural veterinary practices makes the country and Virginia less prepared to deal with such emergency situations, a scenario that would create unimaginable consequences. Therefore, it is essential that students be encouraged and supported to fill the need for rural practice veterinarians and that assistance is provided to make certain these practices are financially viable.

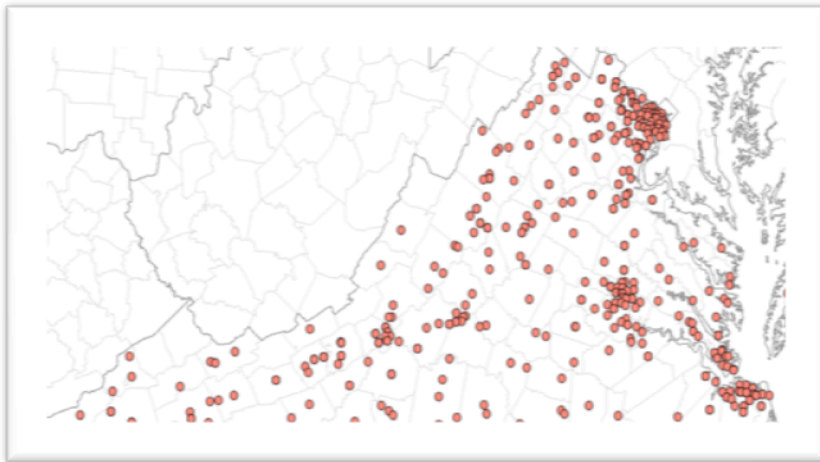
3.0 Virginia's Food Animal Veterinary Needs

3.1 Current Veterinary Practices in Virginia

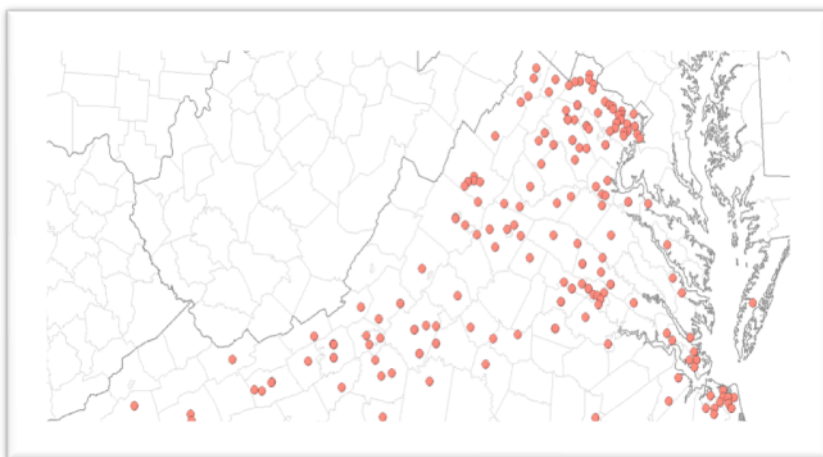
The Virginia Department of Health Professionals reports 3,401 licensed veterinarians working in 695 Full Service facilities and 225 Restricted Service facilities in Virginia in 2008. The locations of these facilities are shown on the maps below.

Most counties in Virginia have a Full Service veterinary clinic either resident in the county or in an adjacent county. Restricted Service practices, which typically represent house call or large animal ambulatory practices are more variably distributed throughout the state.

Location of Full Service Veterinary Clinics in Virginia in 2008



Location of Restricted Veterinary Clinics in Virginia in 2008



3.2 Current Large Animal Veterinary Practices in Virginia

To identify those practices serving large animals in Virginia, the Study Group used information available from the American Veterinary Medical Association (AVMA), whose members report their practice focus. In 2008, 140 AVMA member veterinarians in Virginia declared that over 30% of their practice was dedicated to food animals. This compares to 151 AVMA member veterinarians in 2001. It should be noted that the average age of those reporting increased from 45 to 48 years from 2001 to 2008.

The map on the next page shows the location of these food animal veterinarians by county; the bars on the map indicate the number of food animal veterinarians in each county. The shading of the county indicates its cattle density:

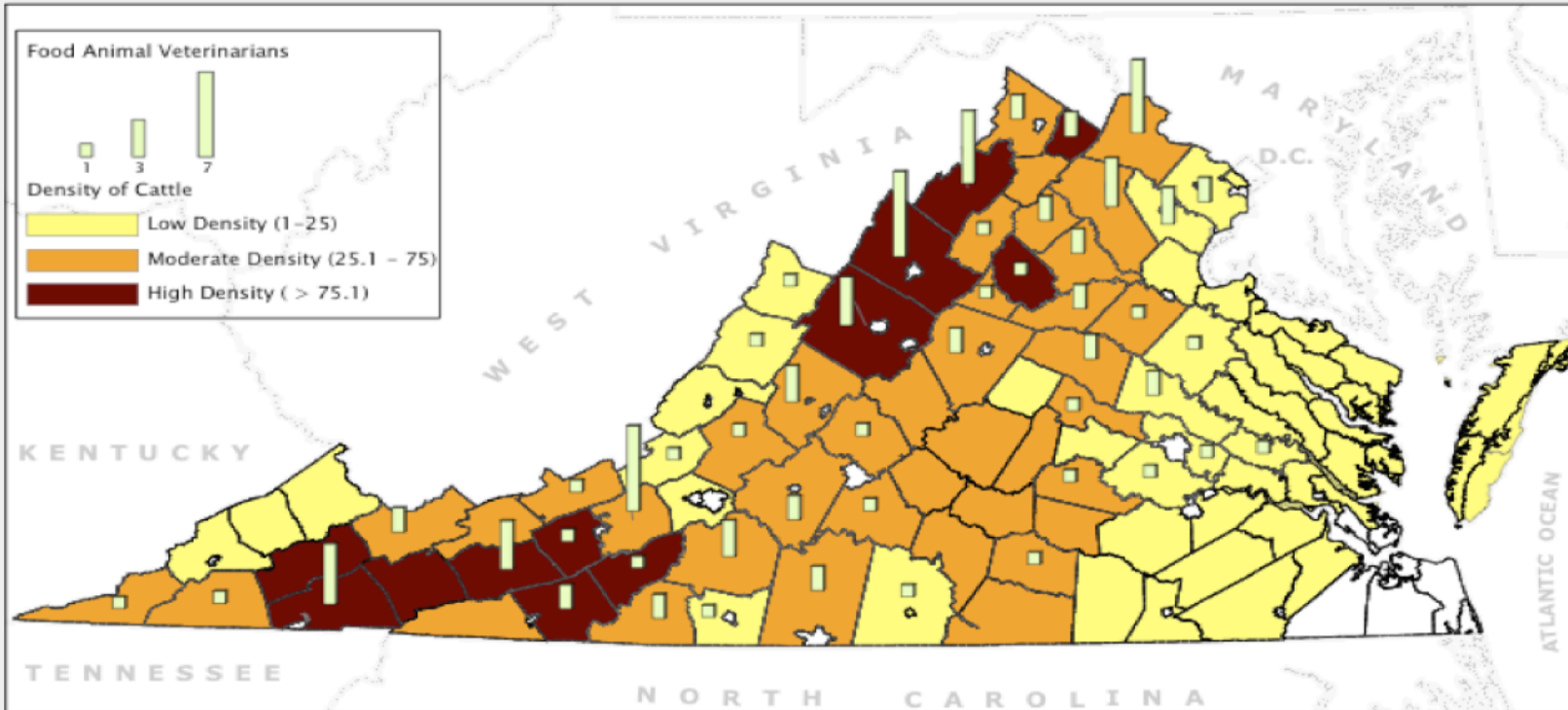
- Lightly shaded: 1-25 cattle/square mile
- Medium shaded: 25-75 cattle/square mile
- Dark shaded: over 75 cattle/square mile


As shown by the map, food animal veterinarians in Virginia are concentrated in those regions of the Commonwealth with high concentrations of cattle, especially dairy cattle. Conversely, there is a lack of food animal veterinarians in Southside, Southern, and far Southwest Virginia where cattle density is lower. This result is expected, as discussed earlier, since a high density of cattle can support economically viable veterinary practices, while in areas of low cattle density, it may not be possible to have an economically viable food animal practice today.

A review of areas in Virginia that are underserved by food animal veterinarians currently indicates a need for 3-5 additional practitioners today (above the current 140 in the state). Based on the AVMA data, there is also a need for 4-6 new large animal veterinarians per year to replace retiring veterinarians. Therefore, after the current deficient is corrected, each VMRCVM class needs to graduate about 5 students who will enter food animal practice in Virginia. Data for 2007-2009 graduates of the VMRCVM show that about 2 graduates per year chose a food animal or mixed practice in Virginia. Therefore, unless action is taken to increase this number, the current shortage will only become exacerbated.

Large Animal Veterinarians in Virginia, 2008

Number of Cattle Per Square Mile in Virginia Counties: 2008






Map Produced: Sep. 18, 2009
Virginia Tech's Center
for Geospatial Information Technology.

Total Food Animal Veterinarians in 2001: 151
Total Food Animal Veterinarians in 2008: 140

0 37.5 75
Miles

0 55 110
Km



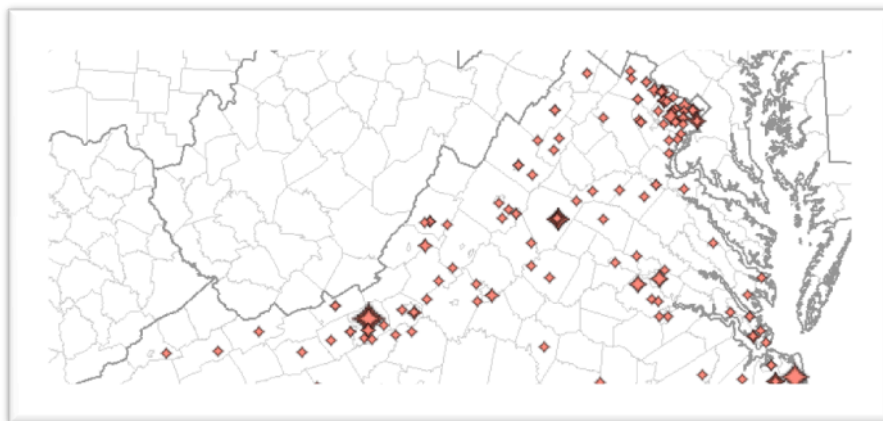
Source: United States Department of Agriculture, National Agricultural Statistics Service: 2008 <http://www.nass.usda.gov>.
2001 and 2008 Data are taken from the AVMA Membership Database as of 2/31/2008. Includes active AVMA members (Regular, Recent Graduates, and Educational) and Non-members (Excludes non-members born prior to 1938 and non-members who received their veterinary degree prior to 1964) who have a Species Category of Food Animal Predominant, Food Animal Exclusive and/or Mixed meeting specific criteria of species contact. [*Mixed Animal counted in the food animal veterinarian category consisted of all those who had 30% or more involvement with one or more of the following species: Bovine, Porcine, Ovine/Camelid, Cervid, Poultry]

3.3 VMRCVM's Current Student Applicant Pool

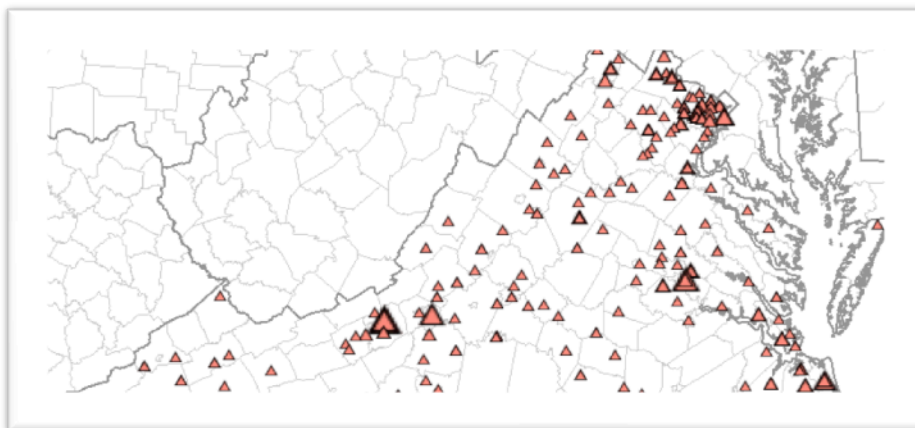
The College, per its charter and contract with the state of Maryland, currently admits 50 Virginia applicants per year, 30 Maryland applicants and 15 applicants from outside Virginia and Maryland (increased from 10-15 in 2009). In 2009, the College received 894 applicants for the 95 positions. The average grade point average (GPA) of the Class of 2013 (admitted in 2009) was 3.66; and the average age of entering students was 24.

The College reviewed data submitted by Virginia applicants for the classes of 2010-2013. The maps below identify student location prior to entering the VMRCVM. Note that these locations may be their undergraduate college location rather than their family home. Two maps are included: one for accepted students and one for those applicants not accepted; however, both show a distribution that reflects the population of the Commonwealth.

Location of Students Accepted, Classes 2010-2013



Location of Students Not Gaining Admission, Classes 2010-2013



The College's applicant pool includes a sufficient number from rural regions to meet the expected annual demand in Virginia for food animal veterinarians, if they return to those locations. As discussed above, assistance to help graduates make their decision to enter a rural food animal or mixed animal practice relative to their other options is essential to eliminate the current and projected shortage. Incentives include paid externships in the food animal industry, scholarships, college faculty and veterinarian mentoring support, and financial assistance.

3.4 VMRCVM Student Capacity and Food Animal Veterinary Program

The present campus for the VMRCVM was built in multiple stages over 15 years from its groundbreaking in 1979 to completion of the Phase IV facility in 1994. The facilities were built for a class size of 90 students; class size was increased to 95 in 2009. Of this 95, 50 seats are reserved for Virginia residents. For the College to increase its student capacity, additional facilities in classrooms, laboratories, animal teaching facilities and hospital space are required. The College is currently in the planning stages to provide portions of this additional space; the expansion is included in the state's latest six-year capital plan and construction is scheduled to start in 2010/2011.

A second, but just as essential, factor that influences student selection of a food animal practice career is the staffing required to maintain a food animal program within the College. The resources needed to support such a program include a minimum of three full-time equivalent clinical faculty, three full-time equivalent teaching faculty, one to two full-time equivalent faculty focused on food animal veterinary research, and a support staff of four dedicated exclusively to supporting the food animal program. If these resources are not available, students will not receive the training and mentoring essential for their career development.

3.5 Conclusions

The decline in dairy cattle numbers and farms in the Commonwealth has resulted in a decrease in the number of food animal veterinarians in the state. The Commonwealth's beef cattle herd, on the other hand, is relatively stable but may increase in response to public interest in using locally grown foods for health and safety reasons. To meet these and the other multiple needs discussed above, the Study Group believes that four to six new food animal College graduates are needed each year to meet the needs of farmers and ranchers and maintain the safety of the Commonwealth's food animal system.

4.0 Recommendations to Address Current and Projected Shortage of Food Animal Veterinarians in Virginia

4.1 Incentive Programs Currently Proposed and/or Implemented in Other States

A number of strategies for addressing the food animal veterinarian shortage have been proposed and/or implemented in other parts of the U.S. These include:

- ***After Graduation from Veterinary School***
 - Student debt forgiveness programs in exchange for working in the industry and/or rural areas
 - Financial assistance for equipment needed to start a food animal practice

- ***During Veterinary School***
 - Scholarships and/or tuition reductions supported by allied industries that are targeted at students pursuing a food animal career
 - Paid externships in the food animal industry
 - Involving food animal practitioners in training programs
 - 4-year loan programs for incoming students; and forgiveness of \$20,000/year for 4 years if the student serves in a rural area supporting the livestock industry (Kansas program)
 - Scholarship and forgiveness programs for those who practice in communities of less than 7,500 people
 - Specialized academic and career counseling to students focused on rural and large animal opportunities
 - Providing student mentorships through faculty members and/or the Association of Rural Veterinarians
 - Increasing food animal faculty and resources

- ***Prior to Veterinary School***
 - Mentoring/shadowing programs for high school students
 - Mentorship programs for undergraduate students in the College of Agriculture interested in becoming food animal veterinarians
 - Early admission of undergraduate students and faculty mentorships for those admitted
 - Favorable admission criteria for those pursuing a food animal career
 - Training of pre-veterinary advisors

4.2 Recommendations for Recently Graduated Veterinarians in Virginia

- **Support of Federal Initiatives**

- The U.S. Congress authorized the National Veterinary Medicine Service Act more than six years ago. However, funding for the program has been delayed; and final program rules were published July 9, 2009. The intent of this program is to give debt assistance to veterinarians practicing in rural areas. For Virginia veterinarians to participate, the State Veterinarian will need to designate qualified rural regions. Based on current funding estimates, Virginia can anticipate funding for zero to one veterinarians

In addition federal programs

- The Commonwealth needs to include veterinarians in the Virginia State Loan Repayment Program, a loan forgiveness program for medical professionals who practice in underserved areas
- Another solution to the shortage of rural veterinary practices is to increase the economic viability of these practices. The Study Group believes that local endorsement will enhance the viability of these practices. The Study Group recommends that the Commonwealth:
 - Support the inclusion of rural veterinary practice development for funds and assistance offered by local Industrial Development / Economic Development Authorities and small business assistance programs
 - Encourage the inclusion of rural veterinary practice development for grants offered by the Tobacco Indemnification and Community Revitalization Commission. Of note, many areas of veterinary shortage mirror those impact areas identified by the Tobacco Indemnification and Community Revitalization Commission
 - Encourage animal control programs and shelters to partner with rural practice veterinarians
 - Historically, federal initiatives for veterinary medicine have focused on agriculture agencies. The Study Group believes that veterinary medicine needs to also partner with human health agencies. To that end, the state should encourage inclusion of rural veterinary practice development in rural human health initiative programs such as:
 - Medicare Rural Hospitality Flexibility Grant Program
 - Rural Health Care Services Outreach Grant Program
 - State Office of Rural Health Grant Program
 - Rural Recruitment and Retention Network
 - Rural Assistance Center

4.3 Recommendations: During Veterinary School

To help those admitted to the College consider and pursue a food animal career, the Study Group recommends:

- The Virginia Veterinary Medical Association continues to support its successful mentor program in the College that pairs students with veterinarians in the Commonwealth; others, including professional organizations and business entities, should also participate and support this program
- The College continue to offer and work to increase the number of scholarships specially focused on those wishing to pursue a food animal career which would build on the College's Clarence and Gertrude Leach Scholarship and focus on business and industry supported scholarships
- The Commonwealth should financially support an increase in the student capacity of the College; which will require funding for additional classrooms, laboratory and hospital facilities as well as faculty resources. In addition, two federal initiatives currently in the US Congress should be supported:
 - Veterinarian Services Investment Act (HR 3519) that would support programs to develop, implement and sustain veterinary services and relieve veterinary shortage situations.
 - Veterinary Public Health Workforce and Education Act (HR 2999) that would establish fellowships for on-the-job training of veterinarians in food systems security and public health as well as provide support for teaching faculty in the veterinary public health field.
- Farm Bureau and other associations and business entities should partner with food animal practitioners to expand the number of paid student food animal externships which would build on the externships already provided by:
 - Virginia Academy of Food Animal Practitioners
 - Academy of Rural Veterinarians
 - American Association of Bovine Practitioners
 - Academy of Veterinary Consultants
 - Pfizer Animal Health
- The College will continue to create networking opportunities for students with the profession's stakeholders:
 - Virginia Farm Bureau
 - Virginia Agribusiness Council
 - Virginia Cattleman's Association
 - Virginia Dairyman's Association
 - Virginia Sheep Breeders
 - Virginia Department of Agriculture and Consumer Services
 - Virginia Department of Health
 - United States Department of Agriculture

4.4 Recommendations: Before Entrance to Veterinary Medicine College

The applicant pool for veterinary school admission has remained robust over the past 20 years with approximately three qualified applicants for each in-state position. The Study Group identifies a potential opportunity to enhance the recruitment of rural students into the curriculum by:

- The College encouraging and supporting outreach and mentoring programs to high school students to involve rural veterinarians and their associations as well as college faculty participating in career days, promoting local student clubs, and working with guidance counselors
- The College encouraging undergraduate students in colleges of agriculture and life sciences with an interest in veterinary medicine and/or food animal veterinary practice
- The College working with community colleges to encourage students to consider a veterinary medicine career
- The Commonwealth supporting 4-H, FFA and other agricultural education programs such as the Governor's school for agriculture for high school students

The focus of the above criteria will be on those prospective students who meet the College's entrance requirements. These activities should be complemented by the College:

- Considering adoption of admission criteria that encourages applicants from rural communities

APPENDICES

Appendix A

House Joint Resolution No. 730

Requesting the Virginia-Maryland Regional College of Veterinary Medicine at Virginia Polytechnic Institute and State University to study the shortage of large animal veterinarians. Report.

Agreed to by the House of Delegates, January 30, 2009

Agreed to by the Senate, February 24, 2009

WHEREAS, according to the American Veterinary Medical Association, "America's livestock and meat industries have one of the world's best health and safety records; however, a projected severe shortage of food animal veterinarians may threaten this status"; and

WHEREAS, the Animal Welfare Division of the American Veterinary Medical Association has stated that "with the American public more focused than ever on food safety and security, the role of the food animal veterinarian has never been more important, and a shortage of large animal veterinarians would be catastrophic for the industry and for society"; and

WHEREAS, the U.S. Bureau of Labor Statistics projects that there will be a shortage of 15,000 veterinarians in the next 20 years; and

WHEREAS, fewer than 80,000 veterinarians practice in the United States today, and only 15,000 are engaged in food-animal care, public practice, or herd-population medicine; veterinarians are a unique resource within the health-professions field, as they are the only health professionals trained in comparative medicine, playing a critical role in the linkage between agriculture, animal health, and human health, according to the article, "World Facing Shortage of Large-Animal Veterinarians," by Jeff Mulhollem and Chuck Gill, which was published in *PennState Live* on November 20, 2008; and

WHEREAS, testimony submitted to Congress in support of legislation to address the critical shortage of large animal veterinarians indicated that veterinarians who specialize in large animals guard the nation's food supply and are the health professionals trained to diagnose and contain diseases in animals that may be transmitted to humans; and

WHEREAS, the number of large animal veterinarians is dwindling due to the decline in family farms and the increase in better-educated farmers who are less dependent on veterinarians; nevertheless, the services of a large animal veterinarian are essential for the successful operation of an animal agriculture farm; and

WHEREAS, there is a critical shortage of veterinarians engaged in regulatory, public health, and diagnostic veterinary medicine, and in biomedical research and academia, and the 28 colleges of veterinary medicine in the nation are at full capacity, graduating 2,500 veterinarians each year; and

WHEREAS, according to the Virginia Veterinary Medical Association, since 1990, the number of veterinarians who specialize in treating large animals has dropped from nearly 6,000 to fewer than 4,500, and of this number less than 10 percent of veterinarians in private practice treat large food animals; and

WHEREAS, in 2007 the Virginia Department of Agriculture and Consumer Services reported 47,600 farms in the Commonwealth, less than half the number that existed in 1960, but data indicate that at least seven counties in Virginia have a shortage of large animal veterinarians: Appomattox, Bland, Giles, Smyth, Alleghany, Tazewell, and Highland Counties; and

WHEREAS, the number of veterinary students specializing in large animals nationally has dropped from 4.5 percent in 1990 to 1.7 percent in 2006; less than six percent of the students in the 2009 graduating class at Virginia-Maryland Regional College of Veterinary Medicine have a specialization in food animal medicine; and the number of students specializing in large animal medicine continues to decline despite nearly \$200,000 spent by the College in scholarships to recruit large animal veterinarians; and

WHEREAS, the veterinary public health infrastructure as well as the public health of humans is at risk due to the shortage of large animal veterinarians who are trained to protect the Commonwealth's and the nation's food supply; now, therefore, be it

RESOLVED by the House of Delegates, the Senate concurring, That the Virginia-Maryland Regional College of Veterinary Medicine at Virginia Polytechnic Institute and State University be requested to study the shortage of large animal veterinarians.

In conducting its study, the Virginia-Maryland Regional College of Veterinary Medicine shall (i) determine the supply and demand for large animal veterinarians in Virginia, including by region of the Commonwealth; (ii) ascertain the causes of the shortage of such veterinarians and recommend immediate and long-term alternatives to ameliorate the demand; (iii) address the salary and working conditions of large animal veterinarians relative to the debt burden of recent graduates; (iv) propose incentives to encourage students to choose veterinary medicine as a career and large animal practice; (v) establish a profile of applicants to veterinary medicine school; (vi) determine the efficacy of increasing the Virginia-Maryland Regional College of Veterinary Medicine's capacity at Virginia Tech to serve more veterinary students; and (vii) consider such other factors that may influence the practice chosen by veterinarians.

In addition, the Virginia-Maryland Regional College of Veterinary Medicine shall provide for the meaningful participation of representatives of the Virginia Farm Bureau, Virginia Agribusiness Council, Virginia Veterinary Medical Association, Virginia Department of Agriculture and Consumer Services, Virginia Department of Business Assistance, Virginia

Economic Development Partnership, and State Veterinarian or their designees throughout the course of the study. Further, no state funds shall be used in the conduct of this study.

Technical assistance shall be provided to the Virginia-Maryland Regional College of Veterinary Medicine by the State Council of Higher Education for Virginia, Virginia Department of Agriculture and Consumer Services, State Veterinarian, and Virginia Veterinary Medical Association. All agencies of the Commonwealth shall provide assistance to the Virginia-Maryland Regional College of Veterinary Medicine for this study, upon request.

Upon completion of the study, the Virginia-Maryland Regional College of Veterinary Medicine shall submit its report to the House Committees on Agriculture, Chesapeake and Natural Resources and on Education, and the Senate Committees on Agriculture, Conservation and Natural Resources and on Education and Health, and these standing committees shall review the findings and recommendations of the report for appropriate legislative, policy, and budgetary implications and action, and make such recommendations as necessary.

The Virginia-Maryland Regional College of Veterinary Medicine shall complete its meetings by November 30, 2009, and shall submit to the Governor and the General Assembly an executive summary and a report of its findings and recommendations for publication as a House or Senate document. The executive summary and report shall be submitted as provided in the procedures of the Division of Legislative Automated Systems for the processing of legislative documents and reports no later than the first day of the 2010 Regular Session of the General Assembly and shall be posted on the General Assembly's website.

Appendix B

References

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