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I. INTRODUCTION

A. Background

The Ohio State University (OSU) College of Veterinary Medicine is a member of a comprehensive Health Sciences Center, which includes the Colleges of Veterinary Medicine, Medicine, Pharmacy, Dentistry, Optometry, Nursing, and Allied Health Sciences on a single campus. Veterinary Biosciences is one of three departments in the College of Veterinary Medicine and was formed in 1995 by merging the former Departments of Veterinary Anatomy and Cell Biology, Veterinary Physiology and Pharmacology, and Veterinary Pathobiology. The Department of Veterinary Biosciences combines the disciplines of veterinary anatomy, immunology, microbiology, pathology, pharmacology, physiology and toxicology into a single academic unit. The breadth of the faculty’s expertise offers exceptional opportunities for research, interdisciplinary teaching in the veterinary medical, post-D.V.M., and graduate curricula, and state-of-the-art clinical laboratory services. The Department has a strong graduate program training both pre-doctoral and post-professional degree students who pursue the M.S. and Ph.D. degrees. Departmental supported facilities include a flow cytometry and confocal microscopy core, in vivo imaging instrumentation, cardiovascular physiology research laboratories, an electron microscope, shared equipment laboratories, necropsy facilities and histology laboratories. Departmental services provided to the College and beyond include clinical and anatomic pathology, immunohistochemistry and mouse phenotyping services. Other OSU resources vital to the Department include a National Institutes of Health designated Comprehensive Cancer Center, two campus-wide transgenic animal facilities, the Center for Retrovirus Research, and campus-wide graduate education programs in molecular, cellular and developmental biology, and biochemistry. The Department in 1996 developed a strategic plan. The development of the revised strategic plan in 2002 for the Department was initiated by the Department Chair in consultation with the faculty, staff, and students to address short and long-term needs of the Department and to facilitate the accomplishments of commonly agreed upon goals in the areas of research, education, and service.

B. Planning Process

The planning process for developing a Strategic Plan for the Department of Veterinary Biosciences was completed in four stages.

1. The Chair of the Department of Veterinary Biosciences initiated the development of the Strategic Plan for the department by assigning faculty and staff representatives to subcommittees in the areas of research, education, or service. The Chair also asked each subcommittee to invite the participation of graduate student representatives. The Chair selected subcommittee chairpersons to coordinate the subcommittee deliberations.

2. The subcommittees on research, education and service were charged with preparing a document on current status, goals, objectives, strategies, and progress assessment mechanisms for their respective areas, which would be congruent with the missions
of the Department and the 2002 College of Veterinary Medicine Strategic Plan. Following a series of meetings by the subcommittees, through the spring and summer quarters of 2002, draft preliminary documents were completed by each subcommittee. During this process there was a faculty meeting primarily devoted to allowing each of the subcommittees to present their draft preliminary documents for faculty responses and suggestions.

3. At the completion of the second stage, the chairpersons of the research, teaching and service subcommittees and the Department Chair met to discuss and refine the submitted preliminary subcommittee reports into a draft of the final document. The purpose of the conference committee was to agree on a final format, correct incongruities and overlaps in the document, and focus and further develop the content of the strategic plan. Upon a general agreement by members of the conference committee, the draft final document was presented to the faculty for their evaluation and comments. A subsequent meeting of the conference committee produced a draft document that was distributed to all faculty for discussion at a faculty meeting.

4. Following the faculty meeting, the conference committee met again to consider all suggestions from the faculty and make appropriate changes in the final document.

5. A final copy of the Strategic Plan accompanied by a ballot was distributed to all voting faculty for their consideration early in Fall quarter of 2002.

II. MISSION STATEMENT

A. The Mission of the Department of Veterinary Biosciences

The Department of Veterinary Biosciences conducts research and pursues scholarly activities in the basic and applied veterinary medical sciences with the dual goals of discovering and disseminating knowledge for the education of professional and graduate students, and for the general benefit of veterinary medicine and society. The mission of the department is accomplished through three activities: research, education, and service.

1. The **research mission** is to have all faculty engaged in basic, translational or applied research that will generate new knowledge pertinent to their professional disciplines, and enhance the education of veterinary medical and graduate students. All faculty will disseminate knowledge acquired from their research through publication, teaching and other scholarly endeavors.

2. The **education mission** is to organize and teach all basic and selected applied/clinical veterinary medical sciences in the professional curriculum. Equally important is the mission to educate graduate students by providing experienced graduate advisors, state-of-the-art laboratory facilities, and programs for graduate education and specialty board preparation.
3. **The service mission** is expected to encompass clinical laboratory, professional, and administrative services. The clinical laboratories provide diagnostic services to The Ohio State University Veterinary Teaching Hospital and the veterinary medical community in the State of Ohio. These laboratories have a dual function of service and teaching, and are used as a means to educate veterinary medical students and to prepare postdoctoral students for specialty board certification. Professional service is accomplished through dissemination of knowledge to the broad biomedical and veterinary medical communities and to the citizens of the State of Ohio. Administrative service involves active faculty participation in the governance of the department, college and university.

4. **Faculty and staff development** is essential for the department's missions in research, education, and service to be realized. The department will recruit the finest faculty and staff available in areas of need, nurture the career development of new and existing faculty and staff, and maintain an environment that facilitates high quality research productivity and promotes excellence in teaching and service.

### III. EXECUTIVE SUMMARY

#### A. Research Summary

The Research Strategic Plan is based on a 5-year period starting in 2002. The Plan is divided into three sections.

1. Current status of the department in terms of personnel, research funding, and publications. This information provides the important basis to evaluate the progress of the next five years. Most notable is that the department’s extramural research expenditures (support) increased 2.6 fold from fiscal year 1997 to 2001 ($1.3 million to $3.8 million).

2. Research goals and strategies to accomplish the overall goal of increasing the size, quality, and reputation of the research program. This section is broken down into short-term and long-term strategies to facilitate faculty improvements and infrastructure improvements (space, department resources and support services, graduate program, and administrative support).

3. Methods to evaluate success of the five-year plan. Specific indicators include a 100% increase in research expenditures, an increase in usable research space and major equipment to support research, and an increase in quality faculty, research scientists, scholars, and graduate students devoted to research.

#### B. Education Summary
The education mission of the Department of Veterinary Biosciences is to organize and teach basic and selected clinical veterinary medical sciences in the professional curriculum. Equally important is the mission to educate graduate students by providing experienced graduate advisors, state-of-the-art laboratory facilities, and programs for graduate education, and to provide medical specialty training in veterinary pathology leading to successful completion of the American College of Veterinary Pathologists certifying examination.

The faculty is responsible for three aspects of teaching.

1. Faculty provide leadership in basic sciences education and a portion of the clinical education within the professional curriculum. Among the basic sciences, anatomy, infectious disease, pathology, biochemistry, endocrinology and physiology are major subject areas. The curriculum is designed to provide a fundamental understanding of the basic sciences that are the foundation for the practice of veterinary medicine and to provide future veterinary medical practitioners with the tools to keep pace with advances in diagnostic and treatment modalities. Clinical education focuses upon anatomical and clinical pathology instruction as it applies to laboratory diagnosis of disease.

2. Graduate education of professional and non-professional students is a fundamental mission of the department, and is an important adjunct to scholarly pursuit in research. The goal of the graduate education program is to provide rigorous, scholarly training to prepare graduates for careers in biomedical research. Departmental graduate faculty are mentors for graduate students matriculating in Ph.D., dual degree (i.e., D.V.M./M.Sc.), or M.Sc. programs.

3. Education in the medical specialty disciplines of veterinary pathology, and veterinary clinical pathology is performed in conjunction with departmental diagnostic services provided to the College of Veterinary Medicine and the general public. The collective goals addressed in the strategic plan are categorized into 6 areas: 1) professional education, 2) graduate education, 3) medical specialty education, 4) incentives and rewards, 5) physical facilities, teaching equipment, and policies, and 6) faculty status/opportunities for future growth. The major goals as relates to the respective areas are to: 1) instill in veterinary medical students a fundamental understanding of the basic and applied sciences that form the cornerstone of an effective veterinary medical education, 2) enhance the quality of graduate (research) education with emphasis on quality over quantity, 3) in the context of faculty expertise, focus resources on the maintenance of areas of excellence and the pursuit of opportunities in selected areas for future development, 4) develop an incentive policy that encourages faculty to attain teaching excellence and to continue their improvement of teaching materials and methods, 5) provide well-maintained, aesthetically pleasing and health cognizant laboratories and facilities, and 6) assure that the department has faculty of sufficient quantity,
breadth, and depth of expertise to meet the current and future teaching needs of the department and college, including, but not limited to, teaching in the professional curriculum, post-graduate education, and specialty board preparation.

C. Service Summary

Many VBS faculty participate in clinical services, which include hematology/cytology, clinical chemistry, surgical biopsy, necropsy, immunohistochemistry, mouse phenotyping, molecular diagnostics, electron microscopy, and flow cytometry. These services contribute substantially to the research and teaching missions of the college and university. VBS faculty members also contribute their time and effort to a wide variety of professional services, such as grant reviews (NIH, USDA, and NSF), specialty board examination committees, executive boards of professional organizations, editorial boards for professional journals and journal editorship, and advisory panels, working groups, and boards of trustees. Furthermore, VBS faculty also participate in many departmental, college, and university administrative activities. The extent to which individual members of VBS engage in these service activities is highly variable. Based on the last Strategic Plan, the following changes in clinical services have been implemented: an immunohistochemistry laboratory was established, expertise was acquired in molecular diagnostics, the hematology/cytology and clinical chemistry laboratories were computerized, and cooperative arrangements with the OSU ULAR and the State Diagnostic Laboratory in Reynoldsburg have improved student access to specimens from laboratory animals, pigs, and poultry. In addition, a Mouse Phenotyping Service has been established and serves as a venue for training students. Important goals for the future include coordinating clinical services among all departments to improve the accessibility of the services, developing a business plan for the services, remodeling space and updating equipment, expanding the mouse phenotyping effort, establishing molecular pathology services, improving diagnostic services in the area of infectious disease, and encouraging faculty participation in local and national administrative and professional services. If accomplished, these goals will result in more efficient services, increased use of services, increased profitability of services, and an increased range of services. This will enhance the visibility of VBS and will increase contacts between VBS faculty and researchers within the university and at the national level.

IV. RESEARCH: CURRENT STATUS, GOALS, OBJECTIVES, STRATEGIES AND MECHANISMS TO ASSESS PROGRESS

A. Research: Summary of Current Status

1. Personnel. There are currently 29 primary departmental faculty; 18 professors, 9 associate professors, 2 assistant professors (Table 1, Appendix A). The faculty are involved in a variety of disciplines and have diverse research interests. The predominant disciplines represented in terms of number of faculty include the broad areas of microbiology (10), physiology/pathophysiology (9), endocrinology (5), and cell biology (5). The methods employed in these investigations represent state-of-
the-art techniques in protein chemistry, molecular biology, biochemistry, and physiology. In addition, the department has 12 joint-appointed faculty (7 professors, 3 associate professor, 2 assistant professor), 3 research scientists, 3 visiting scholar scientists, 5 post-doctoral researchers, and 57 Ph.D. students (42 Veterinary Biosciences, 10 Molecular, Cellular, and Developmental Biology Program, 3 Ohio State Biochemistry Program, 1 Molecular Virology, Immunology and Medical Genetics, 1 Integrated Biomedical Graduate Program, 7 MS students, and 2 MS/DVM students) (Table 2 Appendix A).

2. **Research Funding.** Complete data were collected from fiscal years 1997 through 2001 for all extramural (federal and nonfederal sources). Twenty faculty were collectively awarded a total of $14.7 million in extramural funds (direct costs) during this five-year period. Extramural research expenditures increased 2.6-fold from fiscal year 1997 to 2001 ($1.8 million to $4.7 million). These awards were grouped by title into seven research disciplines including: bacteriology, cancer, endocrinology, rickettsiology, physiology, toxicology, and virology. The Department ranked in the top 10% (19th out of 207 departments) at The University (fiscal year 2000, Office of Research Website).

Research awards, over the last five years, from federal government sources totaling $12.1 million suggest strengths in the areas of cancer, endocrinology, rickettsiology, and retrovirology. Federal extramural research expenditures increased 3-fold from fiscal year 1997 to 2001 ($1.3 million to $3.8 million). Most of the total dollars were awarded in three categories from the National Institutes of Health: RO1 primary research-$7.4 million, F32/K01/K08s graduate and physician scientist training-$1.8 million, and R29 first research awards-$1 million.

In the last five years (1997-2001), the faculty was awarded a total of $2.6 million from extramural funds from nonfederal sources including private companies, research foundations, etc. Non-federal extramural research expenditures remained relatively constant from fiscal year 1997 to 2001 (approximately $500,000/yr). The research disciplines of bacteriology, cancer, endocrinology, infectious disease, physiology, and virology have had success in this category of funding. See Table 3, Appendix A, for a detailed breakdown of funding by fiscal year and category.

3. **Publications.** The diversity in faculty research interests was reflected in the broad spectrum of published manuscripts and book chapters. Over the last 6-year period (calendar years 1996-2001), a total of 343 papers were published in peer-reviewed journals. Table 4, Appendix A, shows the number of journal articles by subject as categorized by the research subcommittee. Scholarly activity also was evident in the publication of 64 book chapters. Table 5, Appendix A, is the breakdown of book chapters by subject. These numbers correspond to approximately 2.34 publications/faculty/year. Classification of journal articles by ISI discipline and impact factor revealed that the quality of publications was high, where, out of 17 research areas (Table 6, Appendix A) 55% of manuscripts published were in the upper 25% of the top journals of their respective fields.
B. Research: Goals and Strategies

The overall goal is to increase the size, quality, and reputation of the research program and promote a culture that nurtures research productivity.

1. Faculty Development Goals

a. The principal goal is to develop new and existing faculty with productive nationally recognized research programs. As a result of this goal there should be an increase in total extramural support for basic and applied research by approximately 100% in the next five years (expectation is approximately $8 million by year 2008 based on 2001 (3.8) and 2002 extramural expenditures). New faculty hires should be capable of sustained extramural research funding in focus areas of research or reinforce research areas compatible with existing Departmental faculty. It is expected that these hires would also find compatible interdisciplinary research groups at the College or within the University. Hiring strategies should be periodically reviewed to take advantage of emerging areas that will compliment or extend existing research strengths.

Short-term Strategies:

i. Increase extramural expenditures (support) by:
   o Increasing the number and dollar value of grants
   o Increasing salary recovery (release time) on grants
   o Increasing equipment requests on grants
   o Increasing the number of NIH Program Project (P01) applications

ii. Successfully complete the recruitment and hiring of a faculty member to support the interdisciplinary genetically-engineered animal pathobiology program and animal genetics. This is an emerging area of research strength supported by a recent faculty hire, a training grant and mouse phenotyping service.

iii. The department chairperson, in cooperation with the faculty, should draft a plan containing: number of faculty hires, their profile (background, qualifications, research interests, and expected level of funding), and salary sources.

iv. Actively participate in Homeland Security Initiative (particularly in the areas of emerging infectious disease).
v. Quantify research performance of faculty and research scientists as part of the annual report: number and type of grants submitted (full indirect costs), success rate of grant applications, total direct dollars, number and quality of publications, high profile research service positions (positions that facilitate competitiveness in one's research field such as study section member, editorship, editorial board member, meeting organizers or session chairs). The expectation is that all faculty should be engaged in seeking extramural funding as principal or co-investigators.

Long-term Strategies:

i Identify opportunities to obtain funds to hire and support additional faculty. Partner with the biomedical community including the College of Veterinary Medicine, OSU Office of Research, The College of Medicine, The James Cancer Hospital and Solove Research Institute and the Comprehensive Cancer Center, Heart Lung Research Institute, Bioinformatics, Imaging Center, Neurobiotechnology Center and Transgenic Core, Heart Hospital, and Biomedical Research Tower.

ii Facilitate and encourage the use of sabbatical leave to enhance research. Enumerate guidelines as how to go about arranging sabbatical leave including identifying funding mechanisms, and arranging of teaching and service substitutes (e.g. by the proposed department grant resource person). Invite NIH and experienced faculty speakers to give presentation on implementation of sabbatical leave.

iii Improve research incentive policies. Develop incentive/opportunity program for obtaining national research funding to supplement faculty salary. Implement the start date of raises for 9-month faculty to be July 1 instead of October 1, and increase access to faculty salary recovery funds. Clarify OSU policy regarding salary remuneration from grants, identify pertinent NIH guidelines, and investigate incentive policies of other universities including removal of the restriction on direct salary supplementation from research grants.

b. Enhance diversity among faculty through the hiring and retention of qualified women and underrepresented minorities.

Short-term Strategies:
i Utilize program faculty to directly assist in recruitment of women faculty and faculty from underrepresented racial and ethnic groups by funding visits to colleges or research institutions that train qualified women and underrepresented minority scientists.

ii Use existing programs at OSU including those sponsored by the Office of Minority Affairs (OSU) to recruit research scientists at OSU to improve the visibility and exposure of underrepresented groups to research opportunities and faculty positions.

iii Incorporate staff members of the Office of Minority Affairs into recruitment efforts. Recruitment efforts should include visits to the Office of Minority Affairs by all appropriate faculty recruits brought to visit the OSU campus. During this visit the staff will orient the prospective recruit on the various activities on campus for social events, retention services, and cultural activities that encourage and support underrepresented minorities.

iv Closely monitor women and underrepresented minority faculty’s academic progress through the Faculty Advisory Committee to ensure that there is professional and social/cultural support for these scientists.

v Personal interviews should be conducted by the Chair of the Department to ensure the comfort level of each faculty on a regular basis. This will provide a setting for the faculty member to voice concerns or suggestions for the academic program or broader issues relevant to completion of research plans and to enhance involvement with interdisciplinary research groups on campus.

Long-term Strategies:

i Pursue internal and external funding from programs that support research participation of women and underrepresented minority scientists, for funds to invite underrepresented racial/ethnic groups to visit OSU, and to conduct receptions/special programs for prospective scientists.

ii Distribute targeted recruitment brochures and provide specific announcements via our website to encourage the application of women and underrepresented racial/ethnic scientists at the pre-doctoral, professional, and post-doctoral level.
iii Promote networking with other groups that support women scientists and underrepresented minority scientists at OSU.

2. **Infrastructure Improvements**

The overall goal is to provide the research infrastructure that will lead to the greatest productivity.

Short-term strategies:

i Develop a plan to upgrade or renovate existing laboratories that are in poor shape.

ii Develop a plan to convert underused Goss Lab space into research space, which includes first floor auditorium and second floor cat colony. Take full advantage of NIH funding mechanisms (C06 grant) and leverage OSU matching funds.

iii Develop a plan for space assignment and reassignment (based on research funding and use)

Long-term strategies:

i Work with the College and University to construct a new building to improve and expand existing space. Use these improvements in infrastructure to facilitate faculty recruitment into potential focus areas or areas of emerging needs.

ii Integrate effectively with University initiatives for multidisciplinary research, including existing programs and space in new buildings and participation in facilities/equipment design.

3. **Department Resources and Support Services**

The overall goal is to maximize the departmental resources and support services to enhance the research productivity of the faculty, staff, and students.

Short-term Strategies:

i Re-evaluate the policies regarding departmental staff research positions: Current status, criteria for assignment, efficiency, optimum benefit for the department and faculty and departmental staff researcher.
ii  Survey the faculty to determine issues/barriers to fluid grant submission.

iii  Assign a central resource person for grant document preparation, copying, form signatures, mailing, research newsletters and web page maintenance.

Long-term Strategies:

i  Partner with Veterinary Clinical Sciences to determine the feasibility of developing a tissue, serum, and DNA bank to facilitate biomedical research.

4. Administrative Support

The overall goal is to provide optimal administrative support for quality research programs in the Department and College.

Strategies:

i  Participate with the Dean and senior administrators of the College to support and encourage nationally funded research programs and help provide the vision of nationally-ranked research enterprise that integrates with other colleges, centers, and initiatives.

ii  Actively participate in future searches for Dean and senior administrator positions. Including organization of sufficient time frame to orchestrate a thorough search, generate a nationwide list of recommended potential candidates and structure interviews consistent with the theme of the College's Strategic Plan for Research.

C. Methods to Assess the Success of the Research Strategic Plan

1. An increase in extramural and intramural research dollars including individual and institutional training grants and fellowships by approximately 100% in the next five years.

2. Increase in usable research space and equipment to facilitate research and accommodate expansion of research programs.

3. A 100% increase in the number of research scientists, scholars, and graduate students. An improved professional placement of our graduates (i.e. tenure track academic positions, leadership positions in industry, and prestigious post-doctoral fellowships).
4. An increase in number of FTE faculty devoted to research.

5. An increase in research publications (greater numbers and higher impact factors) to 4 publications/faculty/year (from 2.34) and 75% (from 55%) of manuscripts published in the upper 25% of the top journals of their respective fields.

6. Greater number of faculty with research related service appointments that facilitate research competitiveness including NIH or other study sections, journal editorship, and journal editorial board member.

7. An increase in faculty named professorships and endowed chairs and an increase in research awards for individual faculty members and graduate students (at local and national levels).

V. EDUCATION: CURRENT STATUS, GOALS, OBJECTIVES, STRATEGIES AND MECHANISMS TO ASSESS PROGRESS

A. Overall Contributions of Faculty in Education

1. The experience of the faculty is reflected in the average years of service by faculty of the Department of Veterinary Biosciences, 20.7 years, (median =18.5 and mode=16) (See Figure 1, Appendix B). Graduate faculty and their participation in the professional curriculum and/or medical specialty training are outlined in Table 1, Appendix A.

2. The faculty in the Department of Veterinary Biosciences contributes a significant amount of teaching in the professional degree Core and Elective Curriculum based on 2000-2001 academic year. Veterinary Biosciences faculty (29 among 101 College of Veterinary Medicine faculty; 29.7%) covered the following percentages in the professional core curriculum (years 1-4): 46.3% of lecture hours; 20.2% of laboratory hours; 1.5% of year 4 clinical service rotation days (Table 1 and 2, Appendix B).

3. Veterinary Biosciences faculty are Team Leaders of 73% of the core curriculum courses (16 of 22 courses), 56% of credit hours (75 of 135 credit hours) for year 1-3, and 4% of the curriculum courses/rotations for year 4 (3 of 72 credit hours). (Table 1, Appendix B)

4. Veterinary Biosciences faculty also participate in 58% (21 of 36) of the non-clinics core courses. In the elective curriculum Veterinary Biosciences faculty teach 15 of 61 courses and 330-370 out of 1330-1640 teaching hours. (See Table 3, Appendix B)

B. Professional Veterinary Medical Education
1. **Current Status:** Faculty in the Department of Veterinary Bioscience play a major instructional role in the core professional education program. Sixteen of twenty-two core courses are primarily taught by Biosciences faculty as team leaders and members. Many faculty also participate in the systems core courses taught during the second year of the curriculum.

2. **Overall Goal:** To provide a fundamental exposure to the basic and translational sciences to form the cornerstone of a veterinary medical education for veterinary students.

3. **Objectives and Strategies:**

   a. To offer course work that provides a fundamental understanding of the structure and function of the animal body and its response to injury.

      Strategies:

      i. Provide current basic science information in all courses taught in the department and in allied courses within the professional curriculum.

      ii. Assign teaching responsibilities to faculty with state-of-the-art knowledge in each appropriate discipline.

      iii. Provide sufficient manpower to efficiently meet the pedagogical demands in all didactic and laboratory teaching commitments through new hires or reassignment of academic responsibility.

   b. To provide students the opportunity for advanced study in basic sciences through elective course work in the various disciplines within the Department of Veterinary Biosciences.

      Strategies:
i Provide opportunities in the application of basic science knowledge to professional students through elective credit via independent studies VBS 696.

ii Assemble a descriptive and informative “Departmental Registry of Basic Science Elective Courses” that details opportunities for advanced study—said registry will made accessible via hardcopy and the web.

iii Register elective courses that are taught on a regular basis with official course numbers and descriptions.

c. To incorporate state of the art technologies in course materials, laboratories, and presentations in the delivery of basic science information in all course work.

Strategies:

i Provide academic program support and necessary hardware/software technologies and appropriate manpower to enable the department faculty to accomplish the education mission.

ii Provide support for faculty enrichment opportunities to learn, utilize, and implement new teaching technologies.

iii Instituting a Departmental “Faculty Focus on Teaching Series” will provide the opportunity and avenue for discussing the level of achievement in providing quality education in the basic sciences component of the professional education program.

8. **Assessment**

Given the nature of Team Teaching that has been adopted within the College of Veterinary Medicine at The Ohio State University, it is incumbent upon each individual Team Leaders to evaluate the quality and timeliness of the material presented in their respective courses across all disciplines within the Department. Success of course offerings may be inferred through course evaluations performed by students and colleagues.
C. Graduate Education

1. Current Status: The last strategic plan for graduate education was formulated in 1996. The current breakdown of graduate students by area of interest, courses taken outside the Department, and courses within the Department are provided in Appendix B: Tables 4, 5 and 6. The major objectives of that plan and progress made towards achieving those objectives are summarized as follows:

a. Maximize the number of graduate faculty within the department.

New faculty hires and joint appointments within the department have significantly added to the number and quality of our graduate faculty (Table 1, Appendix A). These hires reflect the addition of scholars with a record of continued excellence in graduate education.

b. Enhance the availability of extramural stipend support for graduate education.

   i A mouse pathobiology training grant has been funded by the National Institutes of Health (Comparative Medicine), a program entitled "Mouse Pathobiology: Models of Human Disease".

   ii The department has aggressively and successfully competed for University fellowships in support of our graduate student recruits.

c. Enhance graduate student recruitment efforts.

   i A training grant application for Veterinary Students in Animal-Oriented, Hypothesis-Based Research has been favorably reviewed by the NCRR.

   ii Mechanisms for advertising and recruiting students to the departmental graduate program have been formulated. A program coordinator for the graduate studies program has been established in order to support these activities.

   iii There has been continued support for participation in multidisciplinary graduate studies programs and instruction in interdepartmental graduate level courses.

   iv Minority recruitment efforts have been implemented.

d. Enhance the quality of the training environment.
Selective faculty hires have been made that complement areas of existing research expertise. These hires have been successful in landing extramural support for their research programs, a key ingredient of a successful training program.

Renovations in Goss laboratory have been performed and include the establishment of new laboratory and office space.

A system for tracking graduate student progress has been established at the departmental level.

The research seminar format has been changed to emphasize student presentations, with methods established for faculty evaluation of those presentations.

Graduate student achievements are formerly recognized through awards based upon published manuscripts and oral presentations.

The Graduate Student Association was created, enhancing the positive culture within which a successful training program can grow.

e. Establish a method to track success of our graduates (Table 7, Appendix B).

Documentation is compiled from annual reviews by the departmental graduate studies program coordinator.

2. Overall Goal: To enhance the quality of graduate (research) education. Increased extramural funding for research should be translated into increased quality of graduate student education to the Master and PhD levels. Quality of graduate education experience should take precedence over the number of students who are graduated. Emphasis and priority are placed upon new and/or existing strategies that are relevant to the mission of the department and college.

3. Specific Objectives and Strategies:

a. Enhance the quality of the graduate training environment.

   Strategies:

   i. Provide adequate office and research space to keep pace with the increased number of graduate students and the evolving demands of state-of-the-art research.
ii Provide departmental technical support for shared equipment, similar to that which currently exists for flow cytometry, or biomolecular interaction analysis. The level of use and prerequisite training requirements will be used to prioritize support. Technical support will draw from departmental staff, as well as research associates of individual faculty programs.

iii Increase the participation of colleagues within industry, government, and/or other academic institutions in our departmental graduate program. This would include providing alternate year participation in Career Day, sponsored by the graduate student association and supported by departmental staff/resources. Encourage government and the private sector to invest in the support of our training program and encourage our program as the source of their future hires. Personnel investments may include direct participation of industry/government scientists in graduate student instruction, where adjunct faculty appointments are made as appropriate.

iv Create research tracks or specific training areas together with any new course work required to support these tracks/training areas. This should also increase competitiveness of training grant applications and facilitate recruiting efforts.

v Initial tracks will be established where faculty expertise and coursework are already in place (e.g. Pathology).

vi New courses may reflect current activities in which participation of students and faculty is not currently recognized, or they may reflect new activities (e.g., participation in mouse phenotyping service). New courses should draw upon adjunct faculty, where possible.

vii Implementation of new training areas that reflect public need for the expertise, where infrastructure and faculty exist to support these new endeavors. Such expertise and infrastructure may be provided by private research enterprises (e.g., Battelle) or through new faculty hires. These new programs may include: a) Organ system and drug safety evaluation using methods of good laboratory practices; b) Microbiology with emphasis upon emerging infectious disease.

viii Deficiencies in Statistics instruction must be addressed.

ix Provide, on a competitive basis, funds to support graduate student travel to national or international scientific meetings, or
to engage in short-term research projects in a laboratory at another institution. A budget should be set aside for the GSC to support activities that can enhance quality of the training environment.

b. Enhance graduate student recruitment efforts with emphasis on student quality and maximizing student diversity.

Strategies:

i. Revise the departmental website to promote our graduate studies program, with particular emphasis in the following areas: a) Graduate faculty profiles and personal contact information, b) Points of pride, c) Enhance recruiting efforts to target and attract the best candidates in each of the focus areas of strength.

ii. Encourage all program faculty to provide competitive stipend support for graduate students.

iii. Provide summer research experiences for undergraduate and professional students in order to advertising our program and potentially enhancing the pool of qualified minority applicants.

iv. Maintain and selectively expand efforts to maximize diversity within graduate student recruits.

v. Continue to track success of our graduates, incorporating data into documents that can be utilized in recruiting efforts as well as program evaluation.

vi. Create/increase training grants and corporate-sponsored fellowships, utilizing these funding mechanisms to promote diversity within in our graduate student recruits.

c. Enhance the availability of stipend support for graduate education.

Strategies:

i. Maintain fee waivers for students whose stipends are covered by extramural research funds (independent of the amount of indirect costs awarded). Develop a plan to increase fee waiver pool from a percentage of indirect costs. This plan should encourage faculty to include tuition and fees on research and training grants.
ii Continue focus on establishing training grants as a means of providing stipend support (and as a means to enhance quality of the training experience).

iii Identify corporate or endowed sources as sponsors of graduate fellowships.

iv Work with development officers to establish endowments that support graduate training, similar to the Barber Charitable trust.

v Maximize the utility of intramural funding of graduate education (e.g., GTA positions). Fund non-DVM GRAs in addition to traditional resident/GTA students in pathology and clinical pathology.

vi Generate resource that outlines realistic options for competitive extramural support of stipends. Provide mentorship in competing for these funds.

d. Increase awareness of global issues impacting graduate education in the biomedical sciences at The Ohio State University.

Strategies:

i Maximize VBS faculty representation on the university Research and Graduate Council (RGC).

ii Utilize newsletters and website announcements to disseminate information and current events related to university, college, and departmental graduate studies programs.

e. Explore the feasibility and utility of establishing a college-wide graduate program.

Strategies:

i Explore the feasibility of establishing a college-wide, non-thesis Masters degree program.

ii Address college-wide issues impacting graduate education through regular meetings of the GSC chairs.

iii Define benefits and weaknesses of a college-wide MS (thesis) and PhD program through consultation with faculty and administrators from the college of veterinary medicine and the
IBGP, The Ohio State University. A college-wide graduate program modeled should incorporate the strengths of other university interdisciplinary graduate programs.

4. Assessment:

a. Graduate student performance, and thus effectiveness of our graduate program, will be based upon the following data:

i. Time to graduation—this period should be effectively monitored and made comparable to our peer institutions.

ii. Awarding of competitive extramural fellowships and other awards.

iii. Postdoctoral employment records of our graduates.

iv. Number and quality of publications emanating from dissertation or thesis research.

These data will be updated annually using the annual review of faculty and graduate student performance as the collection mechanism. The goal is to document continued excellence in our program, with an overall trend of continual improvement.

b. Effectiveness in promoting diversity in our graduate students will be based upon responses to annual surveys conducted by the National Science Foundation (NSF) and the National Institutes of Health. Survey results for the department of veterinary biosciences will be compared to national trends published by the NSF. The goal will be to at least achieve the national standard for similar programs in the biological sciences.

D. Veterinary Medical Specialty (Residency) Education

1. Current Status: The specialty training programs in veterinary pathology and veterinary clinical pathology are nationally recognized for their excellence and our students are sought after by both academia and industry. Our faculty continues to maintain an important presence on the examination committees for the specialty board examinations.

2. Overall Goal: To maintain and support the successful programs in veterinary anatomic and clinical pathology and to build upon existing faculty expertise and history of excellence with selected areas of possible expansion.

3. Specific Objectives and Strategies:
a. To maintain the excellence of specialty education in Veterinary Pathology and Clinical Pathology programs.

Strategies:

i  Maintain optimal number of faculty that contributes to the residency specialty training.

ii  A portion of faculty hires should complement veterinary medical specialty education/service provided by the department. This strategy will become critical in the near future as members of the department retire and fewer new trainees choose to enter academia.

b. To recruit top quality candidates interested in specialty education.

Strategies:

i  Provide competitive stipends for residency programs.

ii  Enhance the visibility of our programs locally and nationally. This may be done by such mechanisms as continued update/development of the departmental web page, attendance for recruitment purposes at student meetings, etc.

iii  Provide alternative programs such as, allowing non-degree candidates to enter the program for training, establishment of instructor positions for individuals who still wish or require a final year of formal training, but are competent to act as senior residents and contribute to both the educational and service missions of the department, etc.

c. To facilitate completion of dissertation research and preparation for board examination.

Strategies:

i  Establish residency committees to review proposed course of study & ameliorate potential conflicts between completion of dissertation research and preparation for the board examination.

ii  Establish instructor positions for individuals for board-eligible candidates.
d. To establish additional residency programs and increase the scope of existing programs.

Strategies:

   i Initiated by qualified faculty in consideration of market demand and goals of the graduate program. Examples include the mouse pathobiology, microbiology, toxicology and laboratory animal medicine.

e. To develop continuing education seminars for the veterinary community (e.g. surgical anatomy, cytology, applied pathology, microbiology, pharmacology, toxicology).

Strategies:

   i Identify required time and resources and mechanisms to obtain teaching credit.

   ii Formalize training of nontraditional students.

   iii Clinical and anatomic pathology training that fulfills requirements for other medical specialties.

   iv Visiting veterinarians who wish additional training in anatomic or clinical pathology.

   v Students from other universities that come for externships.

   vi Establishment of formal and auto-tutorial courses.

   vii Use of computer-assisted training and distance learning techniques to assist with continuing education and outreach in the area of medical specialty training that is provided by the department.

4. **Assessment**:

   a. Maintain and monitor the high pass rate by trainees on the specialty board certification exams.

   b. Continue to monitor employment opportunities and success of trainees.

   c. Assess needs that may be filled by creation of additional specialty training programs that utilize the expertise of departmental faculty.
d. Track time spent in informal teaching and establish formal, autotutorial or distance learning courses where needed.

E. Incentives and Rewards in Education

1. **Overall Goal**: To develop an incentive policy that encourages faculty to attain teaching excellence and their continued improvement of teaching materials and methods.

2. **Current Status**: The 1996 Strategic Plan did not address the need to develop an incentive policy for improved teaching (research or service). Incentives can take many forms ranging from salary adjustments to personnel support. Incentives in the form of merit salary increases are addressed in the Patterns of Administration.
3. **Specific Objectives:**
   
a. Develop a proactive approach, soliciting teaching excellence with a stated rewards policy.

b. Develop incentive system to reward beyond merit increases in salary. This system should be commensurate with the level of effort and amount of responsibility and not only include criteria of teaching excellence, but also provide a comprehensive view of quality education including factors such as course development, innovative teaching techniques, evaluations of teaching, team leadership roles, etc.

4. **Strategies:**
   
a. Develop a comprehensive list of teaching accomplishments that can serve as a guide and can provide specific goals that faculty may strive to achieve.

b. Identify a comprehensive list of teaching “goals”.

c. Establish targeted awards for specific achievements.

d. Bonus option for limited one-time innovative achievement.

e. Salary adjustments for team leadership or other programmatic contributions.

F. **Physical Facilities, teaching equipment, and policies related to infrastructure**

1. **Overall Goal:** To provide well maintained, aesthetically pleasing and health conscious laboratories and facilities for teaching.

2. **Specific Objectives:**
   
a. To maintain a health conscious, safe and secure environment for teaching to enhance the quality of the student experience and the efficiency of teaching.

b. To improve current teaching laboratory facilities, which need renovations or lack appropriate infrastructure to conduct state-of-the-art teaching.

3. **Strategies:**
   
a. Developing problem reporting methods and communication of maintenance shortfalls to efficiently inform the Department of ongoing or reoccurring problems.

b. Modernize sub-standard laboratory facilities.
c. Develop cost-effective plans/strategies with building coordinators who are properly trained.

d. Schedule quarterly maintenance and safety inspections on all teaching/research laboratories.

e. Utilize services offered through the Environment Health and Safety Office or outside contractors to monitor chemical and particulate exposure levels.

4. Assessment:

a. Assign Building Coordinator responsibility for arranging or performing the inspection of laboratories and facilities to assess problems and shortfalls.

b. Compare and contrast current findings to past results to flag for potential problems in the departmental infrastructure.

G. Faculty Opportunities for Future Growth

1. Overall Goal: To assure that the department has faculty of sufficient quantity, breadth, and depth of expertise to meet the current and future teaching needs of the department and college, including, but not limited to, teaching in the professional curriculum, postgraduate education, and specialty board preparation.

2. Specific Objectives and Strategies:

a. To encourage an environment in which all faculty members understand and respect the multi-faceted education mission of the department and any priorities within that mission.

   Strategies:

   i Encourage the faculty to develop a fair and easily understood way to document faculty (and staff) contributions to the professional (core and elective), graduate, and specialty/residency education missions.

   ii Enhance communication, both within the department and the college, to promote a shared understanding of and appreciation for the multiple components of the education mission and how individual faculty can and do participate in that mission.

   iii Promote a shared understanding of the resources necessary to meet the education mission of the department and college and the source of those
resources to promote both collegiality and accountability.

b. Promote the concept that each faculty member, in particular new hire faculty make an appropriate contribution to the professional education mission of the department.

Strategies:

i. Link the faculty (and staff) reward system to the education mission.

ii. Make effort in recruiting new faculty who would be able to participate in the professional education mission of the department. This is particularly critical in anatomy courses where faculty/ student ratio is unfavorable.

c. Encourage the faculty to acquire appropriate expertise and contribute to the education mission of the department and college.

Strategies:

i. Use the departmental seminar series, and other venues as available, to encourage the acquisition of state-of-the-art teaching skills.

ii. Develop a mechanism that leverages the broad disciplinary expertise of the department faculty to enhance educational offerings; i.e. foster cooperation rather than competition.

d. Develop a data-driven mechanism whereby future (short and long-term) teaching needs or opportunities can be identified and developed.

Strategies:

i. Assure that the Course Offerings bulletin represents up-to-date information that reflects departmental offerings accurately and that the responsibility for instituting necessary changes is understood.

ii. Develop mechanisms of departmental communication to assure that faculty understands the potential effect of decisions of the central administration, such as budget restructuring or quality improvement, on the department and college to encourage responsible educational practices.
VI. SERVICE: CURRENT STATUS, GOALS, OBJECTIVES, STRATEGIES AND MECHANISMS TO ASSESS PROGRESS

A. Summary of Current Status

Clinical Laboratory Service: The department provides diagnostic laboratory service to the Veterinary Teaching Hospital (VTH), all departments within the college, other departments within the university, the university laboratory animal program (ULAR), the Columbus Zoo, private veterinary reference laboratories, private practitioners, other colleges of veterinary medicine, and investigators from other institutions. In addition to diagnostic services, the clinical laboratories provide valuable case material for teaching veterinary medical students and preparing residents for specialty board certification in veterinary pathology, clinical pathology, internal medicine, and surgery. Currently, the majority of the submissions to the clinical laboratories are from clinical cases in the veterinary teaching hospital, although the number of submissions from other OSU departments and from outside OSU is increasing. Clinical laboratories with departmental faculty participation are listed in the appendix with a menu of the services provided by each laboratory. Yearly submissions to the clinical laboratories for the past three years are shown in Table VI-1.

<table>
<thead>
<tr>
<th>Clinical Service</th>
<th>Submissions/year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1999</td>
</tr>
<tr>
<td>Hematology/cytology</td>
<td>16,476</td>
</tr>
<tr>
<td>Clinical chemistry</td>
<td>13,979</td>
</tr>
<tr>
<td>Surgical biopsies</td>
<td>1225</td>
</tr>
<tr>
<td>Necropsies</td>
<td>1450</td>
</tr>
<tr>
<td>Immunohistochemistry(^a)</td>
<td>-</td>
</tr>
<tr>
<td>Mouse phenotyping(^a)</td>
<td>-</td>
</tr>
<tr>
<td>Electron microscopy</td>
<td>~100 cases</td>
</tr>
<tr>
<td>Flow cytometry</td>
<td>2933 samples</td>
</tr>
</tbody>
</table>

\(^a\) Operation started in October, 2001

Faculty participation in the clinical laboratories includes consultation with students, residents, faculty, private practitioners, and researchers; supervision of laboratory personnel; development of new tests; evaluation of new equipment; maintenance of quality control; and interpretation of results. Faculty members spend approximately 15-25% of their time in Clinical Service activities. Participation in hematology/cytology, clinical chemistry, surgical biopsy, necropsy, immunohistochemistry, and mouse phenotyping is a major time commitment for the faculty involved in these service (Appendix C1). Faculty service contributions in these laboratories are listed in Table VI-2.
Two veterinary clinical pathology residents and two veterinary pathology residents participate in required rotations in hematology/cytology, clinical chemistry, surgical biopsies, and necropsy. It is anticipated that one Mouse Pathobiology trainee per quarter will be available to participate in the Mouse Phenotyping Service. Graduate student participation in these clinical laboratories is variable, depending on the student's research program and recommendations by the major advisor.

As part of the previous Strategic Plan (1996), it was recommended that an immunohistochemistry service be added to the Department to enable OSU to remain competitive with other veterinary schools for recruitment of high quality residents and graduate students, develop innovative approaches to the diagnosis of disease, provide adequate teaching material for professional and graduate student education, and maintain faculty expertise. This service, under the direction of Dr. Donna Kusewitt, was added in the fall of 2001. Mary Ross, a histotechnologist with extensive experience in immunohistochemistry, staffs the laboratory. The laboratory provides both research and diagnostic immunohistochemistry for members of the department, other OSU faculty, and investigators from other universities.

The development of molecular diagnostic capabilities was urged in the previous Strategic Plan; however, few molecular diagnostic services are currently available in the College. The Clinical Laboratory provides *Hemobartonella* diagnosis and some additional tests are available through the Microbiology Laboratory (Rocky Mountain Spotted Fever, Feline Infectious Peritonitis, *Ehrichia canis*, Lyme disease). The number of requests for molecular diagnostics is not large at the present time. Dr. Wellman’s laboratory has the equipment and expertise to perform additional molecular diagnostic tests and seeks to do so. With the continuing improvement in veterinary cancer treatment, it is anticipated that molecular characterization of tumors will become increasingly important to veterinary clinicians. Additional services that may be of interest to clinicians and researchers include immunohistochemistry and PCR for infectious agents.

<table>
<thead>
<tr>
<th>Clinical Service</th>
<th>Hrs/wk</th>
<th>Wks/yr</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hematology/cytology</td>
<td>20</td>
<td>17</td>
<td>shared equally among 3 board certified clinical pathologists</td>
</tr>
<tr>
<td>Clinical chemistry</td>
<td>5</td>
<td>NA</td>
<td>1 board certified clinical chemist</td>
</tr>
<tr>
<td>Surgical biopsies</td>
<td>10</td>
<td>4 to 12</td>
<td>shared among 9 board certified pathologists (4 wk duration)</td>
</tr>
<tr>
<td>Necropsy, weekdays</td>
<td>35</td>
<td>4 to 12</td>
<td>shared among 7 board certified pathologists (4 wk duration)</td>
</tr>
<tr>
<td>Necropsy, weekends &amp; holidays</td>
<td>8</td>
<td>52</td>
<td>shared among all board certified pathologists</td>
</tr>
<tr>
<td>Histology/immunohistochemistry</td>
<td>5</td>
<td>NA</td>
<td>1 board certified pathologist</td>
</tr>
<tr>
<td>Mouse phenotyping</td>
<td>8</td>
<td>NA</td>
<td>1 board certified pathologist</td>
</tr>
</tbody>
</table>

a = NA, not applicable. Single individual serves continuously.
In the fall of 2001, a Mouse Phenotyping Service was initiated by Dr. Kusewitt. The Chair and other faculty encouraged this effort. The demand for this service is increasing steadily. Unlike other services provided by the Department, most of the work for the Mouse Phenotyping Facility comes from outside the College. Early in 2002, the Mouse Phenotyping Service began operating as a Shared Resource for the OSU Comprehensive Cancer Center (CCC). As part of this arrangement, the OSU-CCC provided start-up funds for the service. The Mouse Phenotyping Service will provide an essential venue for training students in the Mouse Pathobiology Training Program; the first student will participate this summer. At the present time, the Mouse Phenotyping Service has no dedicated space and is staffed by only a single faculty member.

The Histology Laboratory provides essential support for surgical biopsy, necropsy, immunohistochemistry, and mouse phenotyping activities. In addition, the Histology Laboratory provides histology services for investigators outside of the College and University. Currently, the Histology Laboratory’s space is poorly organized and is shared with researchers. A better organized laboratory with restricted access and updated equipment (microtome, slide stainer) is needed. Renovation plans are presently being discussed. Furthermore, histology submission is not computerized, thus it is difficult to track the work performed in the laboratory for accounting purposes.

Necropsy facilities are outdated, however plans for renovation are presently being considered. The Department has a single transmission electron microscope (TEM) more than 30 years old. All equipment and facilities employed for the preparation of TEM samples are outdated but operational. This equipment to remain operational may need to be replaced or renovated. Ms. Evelyn Handley, a semi-retired technician who now works three days per week, prepares TEM samples. The need for TEM services and the Department’s commitment to providing these services should be re-evaluated. The department provides very little diagnostic service in the areas of bacteriology, mycology, and virology. This situation was noted during the previous Strategic Planning process, but it has not been remedied. Development of a college-based program for microbiology by the Department of Veterinary Biosciences, in cooperation with the Departments of Veterinary Preventive Medicine and Veterinary Clinical Sciences, would facilitate provision of more comprehensive and up-to-date microbiologic services for the VTH and college research programs, encourage interaction between microbiologists in the college and pathologists interested in infectious diseases, foster development of collaborative research programs focused on pathogenesis of infectious diseases, and facilitate the organization of a post-DVM (residency) program for veterinary microbiologists. Furthermore, without strong microbiology support, investigators in the Department may not be able to take advantage of newly available bioterrorism funding.

Equipped with a 3-laser EPICS Elite instrument, the Center for Retrovirus Research Cytometry Laboratory provides multi-color analysis of a variety of cell properties. The flow cytometry lab has the ability to simultaneously analyze up to six fluorescent parameters of a large number of cells in a short amount of time. Analysis possibilities include cell surface phenotype markers, gene expression reporters, cell cycle analysis,
cytokine production, apoptosis, cell viability, rare cell detection, and calcium metabolism. Assistance with experimental design and data analysis is available. This service is currently undergoing amalgamation with the OSUCCC Analytical Cytometry Shared Resource.

B. Goals, Objectives, and Strategies:

1. **Clinical Services Background**: Clinical services remain fragmented. No individual or group administratively coordinates clinical services. There is no central source of information about the kinds of services available and how to access these services. There is no central data management or billing for these services. No periodic review of the usefulness and cost of the services are carried out. The Clinical Diagnostic Coordination Committee was designed to deal with problems that arise related to services provided by the clinical laboratories. However, the Committee meets erratically (less than once every quarter) at the discretion of the Veterinary Hospital Director. The need for Clinical Services is not reassessed periodically. Charges may be established without a clear understanding of the costs they are intended to cover. For instance, necropsy charges do not take into account the significant and increasing costs of carcass disposal. Billing is not centralized and is often haphazard. Moreover, the disposal of income may not be at the discretion of the Director of the Service.

Since the previous Strategic Plan, the hematology/cytology and clinical chemistry laboratories have been computerized. They presently use the VetStar system provided by the Veterinary Teaching Hospital for data management and billing and VADDS as the laboratory information system. Necropsy and biopsy services employ this system in a modified form. A major drawback of the VADDS system is that it is not readily searchable for the purpose of retrospective studies. The hospital is in the process of seeking a new system. The necropsy and biopsy services are in the process of creating a readily searchable Filemaker Pro database that will be very useful for retrospective studies of cases. Liane Peterson is instituting this system with the assistance of Fred Marker.

In the previous Strategic Plan, it was noted that too few laboratory animal, porcine, and avian (commercial poultry) samples are evaluated by the clinical laboratories for faculty and trainees to maintain diagnostic proficiency. Insufficient numbers of samples from these species also make it difficult for residents and graduate students to prepare for veterinary medical specialty board examination. This situation has improved with the implementation of the following changes: Arrangements with OSU ULAR and the State Diagnostic Laboratory in Reynoldsburg (ODA-ADD L) were initiated since the last Strategic Plan and have improved access to specimens from laboratory animals, pigs, and poultry. Tissues from an average of 6 laboratory animals per month are now submitted by ULAR as surgical specimens. In addition, the development of the Mouse Phenotyping Service and the award of the Mouse Pathobiology Training Grant will improve access to laboratory animal specimens and training in laboratory animal pathology. It is now possible for residents to rotate
through ODA-ADDL to obtain more experience in poultry and swine. Dr. Sheila Grimes from the ODA-ADDL leads rounds once a month and presents gross specimens of interesting cases from ODA-ADDL.

2. **Clinical Service Goals and Strategies:**

   a. Improve the coordination and access of Clinical Services offered by the Department.

   **Strategies:**

   i. The Clinical Diagnostic Coordination Committee should be redesigned to meet more frequently and to improve its efficacy.

   ii. Appoint a Director of Clinical Services who would coordinate all Clinical Services.

   iii. Because of the increasing demands for services and the increasingly sophisticated nature of the services requested, the Department of Veterinary Biosciences should consider forming a Clinical Services Committee.

   iv. Provide a central web-based list of all clinical services available at the College with complete information on how to utilize these services.

   b. Review and improve the operational plan for clinical services.

   **Strategies:**

   i. Review the effectiveness and need for Clinical Services in a scheduled manner. Assess service needs of Department, College, and University.

   ii. Base charges for services to allow for the costs of the service, potential growth or retraction of the service. These charges should reflect the services role in the research and educational mission of the Department.

   iii. Billing is not centralized and is often haphazard. Thus, administrative personnel devoted to billing and management of service accounts is needed for an efficient operation of Departmental services.

   iv. The disposal of income generated from the service units should be reinvested to support the mission of the
Department. Thus, cooperation between the Director of the Service, Chair, and Fiscal Officer in spending decisions is required.

c. Improve the ability to record and store records related to services offered in the Department.

Strategies:

i. Where possible use the VetStar system provided by the Veterinary Teaching Hospital for data management and billing and VADDS as the laboratory information system.

ii. Work with Veterinary Technology Services in the College to provide a searchable system for retrospective studies. This system should be user friendly and assessable to all appropriate faculty and staff that require access.

iii. Develop a Filemaker Pro database for retrospective studies of cases. Use College server storage for the database.

d. Improve the infrastructure of services provided by the Department.

Strategies:

i. Plan prioritized renovations of space and update equipment in Necropsy, Histology/immunohistochemistry laboratory, and TEM laboratory based on the need and use of the service.

ii. Coordinate the renovations of laboratory space used for services with efforts to improve the infrastructure of research and teaching facilities.

e. Establish service in emerging areas of need that are congruent with the missions of the Department.

Strategies:

i. Expand mouse phenotyping effort by hiring a second mouse pathobiologist and appropriate or renovated space dedicated to mouse phenotyping.

ii. Continue to integrate the mouse phenotyping service with College and University-wide research efforts.
iii Establish molecular pathology services, including molecular characterization of tumors and the development of PCR-based methods to detect infectious agents.

iv Work with the College to improve diagnostic services in the areas of bacteriology, mycology, and virology, including PCR and immunohistochemistry for infectious agents.

3. **Background Professional Service**: Professional service includes leadership positions in local, national and international scientific organizations; participation on specialty board examination committees; chairing meetings and specialty sections of meetings; participation in study sections of grant review boards, advisory committees and panels of experts; appointments to editorial boards of major professional journals; invited presentations in postgraduate symposia and continuing education seminars; preparation of specimens for other colleges, zoos, museums, and professional programs; and consultation with drug companies, reference laboratories, and state and federal agencies. Faculty participation in professional activities at the national and international level disseminates knowledge to the biomedical and veterinary communities; increases awareness of the research, teaching, and service activities within the department; enhances faculty recognition in their areas of expertise; establishes contacts and develops a networking system for research, teaching, and service; and is useful in recruiting graduate students as well as identifying opportunities for graduates.

Faculty members devote variable amounts of time to professional services. Although faculty participation in professional service activities is time-consuming and frequently requires long distance travel, most faculty feel participation is important and they are actively involved in a wide variety of professional service activities (Appendix C2). When asked to rank eight professional activities in order of importance, 13 respondents ranked them as follows (most to least important): Study section; editorship, editorial board, reviewer; leadership position in scientific organization; advisory committee, expert panel; invited presentation; chair of meeting or specialty section; specialty board examination committee; consultation.

4. **Professional Service Goals and Strategies**:

a. Continue to encourage faculty to engage in meaningful and rewarding service activities.

   **Strategies**:

   i Continue to encourage and support faculty who serve voluntarily in national organizations related to the disciplines represented in the Department.
ii Encourage participation of faculty and staff in national appointments in discipline-based educational or research-based organizations.

iii Acknowledge and reward faculty appointed to study sections, editorships, or leadership in national or international scientific organizations.

5. **Administrative Service Background**: Faculty participate in administrative service by serving as members and chairs of standing and ad hoc departmental, college, and university committees and by consulting with other members of the university community about animal health, laboratory testing, and experimental design (Appendix C3). Faculty participation in departmental committees allows faculty input into promotion and tenure decisions, and selection and determination of successful completion of the graduate program by graduate students within the department. Faculty participation on college and university committees ensures departmental input into governance at these levels. Faculty also serve as advisors to student organizations. The extent to which faculty members participate in administrative service varies widely.

a. **Goal**: Support and expand faculty involved in leadership service roles that enhance the reputation of the Department or College at the national or international level.

   i Support and encourage faculty participation in leadership roles in national, regional, university, college, and department duties.

   ii Provide administrative support consistent with the resources available in the Department for faculty in leadership positions in national or internationally recognized research or educational organizations related to the disciplines in the Department.

   iii Track these efforts by keeping a list of the service commitments of all VBS members to College, University, regional, and national committees and organizations.

C. **Assessment of the Effectiveness of Departmental Service**

1. An increased workload for the laboratories will reflect a combination of increased usefulness of services, increased accessibility of services, and increased efficiency of services.

2. Cost recovery or the generation of a small profit by the laboratories will indicate that they are being run in a businesslike and efficient manner.
3. Faster turn-around time for services performed will reflect increased efficiency and improved facilities.

4. Shorter periods between submission and billing will indicate improved billing efficiency.

5. The provision of new services in the area of diagnostic microbiology will indicate that the services are continuing to grow to meet new research and diagnostic needs.

6. Increased integration of VBS clinical services into the College and University research community will result in increased numbers of manuscripts and grant applications that cite VBS services and increased inclusion of VBS personnel in collaborative research activities.

7. Increased participation in leadership roles of VBS faculty in College, University, national and international organizations and scientific publications related to the disciplines in the Department will be reflective of the enhanced reputation and stature of the Department.