

RESOLUTION FOR THE ESTABLISHMENT OF A SCHOOL OF PLANT AND ENVIRONMENTAL SCIENCES AT VIRGINIA TECH

Documents included:

1. Resolution to Establish School of Plant and Environmental Sciences at Virginia Tech
2. Supporting Documentation- School of Plant and Environmental Sciences
3. Presentation – slides

RESOLUTION FOR THE ESTABLISHMENT OF A SCHOOL OF PLANT AND ENVIRONMENTAL SCIENCES AT VIRGINIA TECH

WHEREAS, bringing together the disciplines from the Department of Crop and Soil Environmental Sciences, Department of Plant Pathology, Physiology, and Weed Science, and Department of Horticulture into a single academic unit will increase the interdisciplinary impacts of teaching, research, and extension programs in the plant and environmental sciences; and

WHEREAS, faculty of the Department of Crop and Soil Environmental Sciences, Department of Plant Pathology, Physiology, and Weed Science, and Department of Horticulture are supportive of combining their respective program strengths and to partner across traditional boundaries; and

WHEREAS, the college administration in collaboration with the three participating departments have proposed the establishment of a School of Plant and Environmental Sciences within the College of Agriculture and Life Sciences at Virginia Tech; and

WHEREAS, the faculty and department heads of the three participating departments, as well as the college administration, have approved the proposal to establish a School of Plant and Environmental Sciences; and

WHEREAS, oversight and administration to integrate the disciplines within plant and environmental sciences and to increase interdisciplinary can be accomplished effectively by the proposed School structure; and

WHEREAS, the proposed School will increase the quality of undergraduate and graduate programs and the number of students completing degrees in plant and environmental sciences; and

WHEREAS, the proposed School supports the mission of the College of Agriculture and Life Sciences at Virginia Tech to serve the Commonwealth, the nation, and the global community through the discovery and dissemination of new knowledge and to prepare students for careers in the life sciences; and

WHEREAS, the proposed School will enhance the stature of Virginia Tech as an internationally recognized university for teaching, extension, and research scholarship in the plant and environmental sciences; and

WHEREAS, the College of Agriculture and Life Sciences acknowledges that its programs are a component of a larger university-wide portfolio of programs in environment and sustainability, and expresses its intent to be an active contributor to interdisciplinary

efforts at the university;

THEREFORE, BE IT RESOLVED, that the proposal for the establishment of a School of Plant and Environmental Sciences at Virginia Tech, housed within the College of Agriculture and Life Sciences, be approved and the proposal forwarded to the President, Board of Visitors, and State Council of Higher Education for Virginia (SCHEV) for approval.

RECOMMENDATION:

That the above resolution recommending the establishment of the School of Plant and Environmental Sciences at Virginia Tech be approved.

April 3, 2017



VirginiaTech

College of Agriculture
and Life Sciences

Office of the Dean
Hutcheson Hall, Rm 104G, MC 0402
250 Drillfield Drive
Blacksburg, Virginia 24061
540.231.4152 or 540.231.3724
Fax: 540.231.4163
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www.cals.vt.edu

August 24, 2016

To whom it may concern:

Our vision is to create a School of Plant and Environmental Sciences within the College of Agriculture and Life Sciences that will increase the visibility, opportunities, and impact of our learning, discovery, and engagement programs. This new School is an exciting opportunity for our college to build upon the unique strengths of our programs and to create an interdisciplinary approach to solve some of our planet's biggest challenges. By bringing together the programs and people of the Departments of Crop and Soil Environmental Sciences, Horticulture, and Plant Pathology, Physiology, and Weed Science, the College and School will make new investments to increase our capacity and tackle the many challenges in agriculture and food security, the green industry, plant biology, and the environment.

The new School will create opportunities to revise our academic programs to prepare our students for rewarding and challenging careers in the plant and environmental sciences; will foster multi-disciplinary collaboration between faculty that will allow for synergies across teaching, research, and extension and outreach; will allow strategic decision-making about hiring and resource allocation across the related disciplines; will consolidate operations for more efficient use of resources to reduce administrative burdens on faculty allowing them to focus on scholarly activities while still retaining current staffing level; will serve as a tenure home for faculty members in the three departments involved; and will align and empower our faculty and staff, so we can help solve some of the grand challenges of the future.

The three participating departments have been working together since the spring of 2015 on planning for the new School. Numerous working groups have been formed to assist in the planning and input was sought from faculty and staff members and others to develop recommendations for transitioning programs and operations to a new School.

We enthusiastically support the establishment of the School of Plant and Environmental Sciences.

Sincerely,

Alan L. Grant
Dean

Susan Sumner
Associate Dean of Academic Programs

Saied Mostaghimi
Associate Dean of Research and Graduate Studies
Director of Virginia Agricultural Experiment Station

Ed Jones
Associate Dean
Director of Virginia Cooperative Extension

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September 26, 2016

TO: Paul M. Winistorfer, Dean

FROM: Alan L. Grant, Dean

RE: Response to your 15-day review comments for Proposal to Create School of Plant and Environmental Science in CALS

Thank you for your 15-day review comments for our proposal to create a new School of Plant and Environmental Sciences. I am pleased you are supportive of our efforts to move forward with the proposal and that you applaud our efforts to create a school that would advance our work, address important challenges, and enable interdisciplinary teaching, research, and outreach. I am happy to respond to the comments you have provided for our consideration. Please see the responses below.

1. We are in a dynamic time at Virginia Tech, with many new initiatives. The destination areas initiative seems to be pertinent to your consideration of creation of a school at this time. Would it be prudent to postpone your actions until destination areas and cluster hires matures and the path for the campus seems clearer?

Response: We see no benefit in postponing the establishment of the School. In fact, our discussions to create the new School began several months before the destination area initiative discussions began. Moreover, the School is bringing together the faculty of the three departments, which is likely to foster the discussions that will lead to development of new interdisciplinary approaches across colleges and departments.

2. We suggest that the portfolio of programs with strong roots in the environment could be a much stronger component of Virginia Tech's academic, research, and engagement portfolio. Establishing the school at this time might not maximize Virginia Tech's impact in this arena of the environment. If we were to take a 100,000 foot view of all programs on campus with a strong stake in the environment would it impact in any way the creation of the school?

Response: We are not proposing the School of Plant and Environmental Sciences as a sole mechanism to 'maximize' Virginia Tech's programs in the environmental arena.

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We are expecting the increased interdisciplinarity of the School to enhance our impact, but we also recognize that maximizing Virginia Tech's impact will require other initiatives that will likely involve greater collaborations among many college and departments, as well as partnerships with external organizations.

3. There is some concern within CNRE regarding the naming of your school and inclusion of the term environment. While we moved CNRE in this direction more than 6 years ago, we wonder how Virginia Tech's portfolio of programs would be perceived externally by having an organization with both a College of Natural Resources and Environment and a School of Plant and Environmental Science in separate colleges. We simply don't know how to assess this impact mostly on student perceptions and subsequent enrollment. Who knows, perhaps it will help raise the flag for all things environment.

Response: We have included 'environmental sciences' in the name of the School because it is a significant component of the programs being merged to form the School, and it is already in the name of the Crop and Soil Environmental Sciences Department. Furthermore, we feel having 'environment' programs in several departments and colleges strengthens the university's visibility in the environment arena and will continue to lead to increased collaborations across colleges; thus, the reason CALS supported your proposal to add 'environment' to your college name several years ago.

4. Once the school is established we understand your desire to grow undergraduate enrollment. You have a wonderful opportunity to do so by combining these three academic units. We applaud your vision of a major addressing environmental remediation and know it will be successful. With the new performance based incentivized budget coming online, will there be degree and major creep from your existing core programs that would negatively impact other units on campus also operating in the environmental space?

Response: New degrees and majors are not a part of the proposal to create the new School. The School will serve as the administrative unit for the existing degrees and majors. As with any academic unit, on-going curriculum review will take place which will lead to proposals for curriculum revisions, and perhaps proposals for new degrees or majors, but any such proposals will require extensive discussions, as well as university governance, to ensure there are no negative impacts on other units.

5. We ask whether other units on campus were consulted regarding the possible positive and negative impacts that might occur to other programs as a result of the creation of your school.

Response: Productive discussions of the plant science working group took place with the Department of Biological Sciences. The department was supportive of collaborating with the new School to consider ways to enhance the plant science curriculum. The outcome of that meeting was positive. One of the working groups (environmental sciences) included a faculty member with a joint appointment in CALS and CNRE and much discussion has taken place in the working group to explore how CNRE and CALS could collaborate in ways to enhance the curriculum for students. The formation of the School will help facilitate the on-going discussions among colleges to enhance the curriculum options for students.

If you have additional questions or would like to discuss these issues in more detail, I am happy to meet with you.

September 23, 2016

TO: Alan Grant, Dean College of Agriculture and Life Sciences

FROM: Paul M. Winistorfer, Dean

RE: Proposal to create School of Plant and Environmental Science in CALS

Dear Alan:

I write on behalf of the faculty and the leadership of the College of Natural Resources and Environment in response to proposed establishment of the School of Plant and Environmental Science in CALS. We applaud your effort to see into the future and create a school that would accelerate your work, address important challenges, and enable interdisciplinary teaching, research, and outreach. We are supportive of your efforts to move forward.

We offer the following comments for your consideration:

1. We are in a dynamic time at Virginia Tech, with many new initiatives. The destination areas initiative seems to be pertinent to your consideration of creation of a school at this time. Would it be prudent to postpone your actions until destination areas and cluster hires matures and the path for the campus seems clearer?
2. We suggest that the portfolio of programs with strong roots in the environment could be a much stronger component of Virginia Tech's academic, research, and engagement portfolio. Establishing the school at this time might not maximize Virginia Tech's impact in this arena of the environment. If we were to take a 100,000 foot view of all programs on campus with a strong stake in the environment would it impact in any way the creation of the school?
3. There is some concern within CNRE regarding the naming of your school and inclusion of the term environment. While we moved CNRE in this direction more than 6 years ago, we wonder how Virginia Tech's portfolio of programs would be perceived externally by having an organization with both a College of Natural Resources and Environment and a School of Plant and Environmental Science in separate colleges. We simply don't know how to assess this impact mostly on student perceptions and subsequent enrollment. Who knows, perhaps it will help raise the flag for all things environment.
4. Once the school is established we understand your desire to grow undergraduate enrollment. You have a wonderful opportunity to do so by combining these three academic units. We applaud your vision of a major addressing environmental remediation and know it will be successful. With the new performance based incentivized budget coming online, will there be degree and major creep from your existing core programs that would negatively impact other units on campus also operating in the environmental space?
5. We ask whether other units on campus were consulted regarding the possible positive and negative impacts that might occur to other programs as a result of the creation of your school.

I hope these comments are helpful to you and your team as you move this proposal father along in governance. Perhaps we can make time to discuss some of these details before the proposal moves to University Council.

We appreciate the opportunity to comment on the proposal during the 15-day review period.



Virginia Tech

College of Agriculture
and Life Sciences

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August 24, 2016

To the Review Committees:

We write to express our enthusiastic support for the proposed "School of Plant and Environmental Sciences" that will, upon approval, be housed in the College of Agriculture and Life Sciences. The School will bring together the faculty, staff, and students, and their programs, from our three existing academic departments: Department of Crop and Soil Environmental Sciences, Department of Plant Pathology, Physiology, and Weed Science, and Department of Horticulture. We strongly believe that by partnering and bringing together our respective program strengths, the School will increase the interdisciplinarity and impact of teaching, research, and extension programs in the plant and environmental sciences.

Sincerely,

Tom Thompson
Head
Crop and Soil Environmental Sciences

Boris Vinatzer
Head
Plant Pathology, Physiology, and Weed Science

Roger Harris
Head
Horticulture

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Proposal for the School of Plant and Environmental Sciences

College of Agriculture and Life Sciences

August 15, 2016

- 1.** Proposed name is **School of Plant and Environmental Sciences**.
- 2.** Proposed School will be composed of the people and programs of the departments of 1) Crop and Soil Environmental Sciences, 2) Horticulture, and 3) Plant Pathology, Physiology, and Weed Science.
- 3.** Proposed effective date of the organizational change: July 1, 2017.
- 4.** Proposed mission:

- **Mission:**

- The School of Plant and Environmental Sciences will be a national and international leader for improving human well-being through learning, discovery and engagement in plant and environmental sciences. We focus on fundamental discovery as well as applied science to enhance quality of life through sustainable plant production by promoting plant and soil health, improving food security, smart design of human landscapes, and promotion of environmental health.

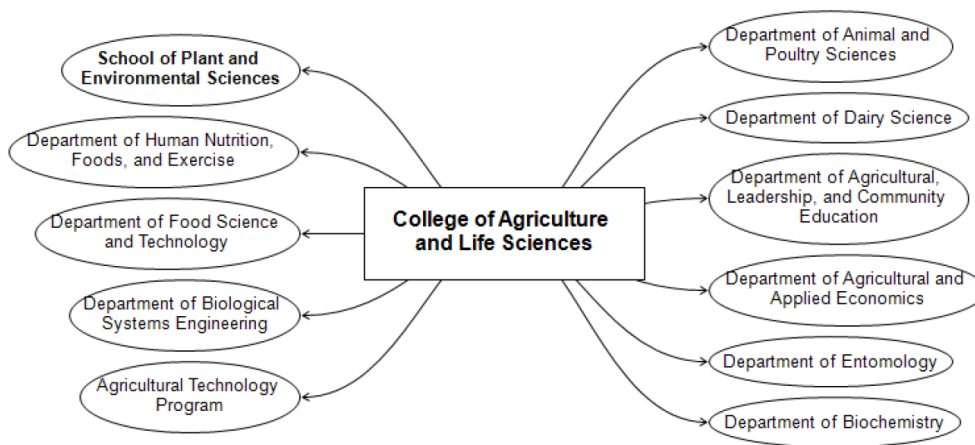
- **Benefits sought by creating the new organizational structure:**

- Innovative academic programs tailored for preparing students for rewarding and challenging careers in the plant and environmental sciences.
- More opportunities for interdisciplinary collaboration between faculty that will increase scholarly activities and research and funding opportunities.
- Enhanced coordination of Extension programming of three departments and several Agricultural Research and Extension Centers.
- A framework to promote innovation and coordinate strategic decision-making for hiring and resource allocation within the college and among the plant and environmental sciences disciplines.
- Business operations that focus use of resources and minimize administrative burden on faculty members.

- A core area of research excellence to justify new facilities, including new Human and Agricultural Bioscience Building(s) and adjacent state-of-the-art greenhouses.
- Increased investment from public and private sources for the plant and environmental sciences.

5. Proposed organizational structure:

- **The proposed School will be a unit of the College of Agriculture and Life Sciences, and the School Director will report to the Dean of CALS.**



- **Internal Organization of the School:**

- Administrative leadership will include a Director. An Executive Committee will serve as advisory to the Director, and will be comprised of the Director (Executive Comm. chair), three Program Directors for undergraduate education, research and graduate education, and extension and outreach, respectively; a representative from each Section of the School, and a representative from the Agricultural Research and Extension Centers.
- The School will replace the administrative structures and academic units of the three current Departments.
- Current Departments will initially be “Sections” within the School. Upon establishment of the School, the Director, Executive Committee, and faculty will develop a collaborative process that provides faculty with incentives, resources, and opportunity to change Section affiliation, affiliate with multiple Sections, and/or to aggregate into new Sections, each with a critical mass of faculty.

- We anticipate that Section “boundaries” will change with time in response to new initiatives, societal and stakeholder needs, and national/global emerging opportunities.
- Section Chairs will be elected by Section faculty and will serve on the Executive Committee, represent the interests of Section faculty, mentor faculty, and assist the Director with external stakeholder relations.
- All physical, financial, and personnel resources of the three departments will be combined to support School operations. These resources will be under the oversight of the School Director. The Director will work with the Program Directors and Section Chairs to allocate funds to support section activities.

- **Promotion and Tenure/Annual Evaluation:**

- The Promotion and Tenure process and annual evaluations will be organized at the school level under guidance of the School Director. Subcommittees corresponding to Sections will be established to ensure that candidates for promotion and tenure are evaluated appropriately by colleagues and administrators and in accordance with University policies and procedures.
- Procedures to guide the intra-School process for promotion and tenure will be developed. The process will consider the breadth of disciplines, number of faculty members, and support needed for successful transition of current tenure-track assistant professors to the new tenure home.
- The formation of the School will not reduce representation of faculty in the School of Plant and Environmental Sciences within the college unit. CALS Governance and Promotion and Tenure will retain three representatives from the School faculty to ensure adequate faculty input in academic, research and Extension missions of the college
- The procedure for annual faculty evaluations is currently under development.

- **Identify any additional resources needed to create the administrative organization of the proposed school and provide a justification for these resources.**

- Will the school require an additional financial/budget officer?
 - ✓ Yes, the School will require a full-time Business Manager
- Will the school require a development officer?
 - ✓ No

- Will the school require an information officer?
 - ✓ The School will outline a formal plan with CALS IT to migrate to a model of IT support that includes necessary resources.
- Will the school require associate or assistant directors?
 - ✓ Yes. Administrative leadership of the School will include a Director and three Program Directors for undergraduate education, research and graduate education, and extension and outreach, respectively.
- What additional staff resources and operating budgets will be required to support any new positions?
 - ✓ We believe that, except for the positions noted above, current administrative staff resources will be adequate for administrative needs, although retraining of administrative personnel is likely to be needed.
 - ✓ Operating budget needs are not known at this time

• Develop a proposed operating budget for the school that reflects both current operations and any new financial resources required to create the school.

- Operating budget from the three founding departments will be merged into a collective School operating budget to be strategically managed by the School's administrative leadership.
- All existing commitments made by departments will be honored and accounted for during the initial transition period into the School structure.
- As the School prepares to launch in July 2017, a parallel Agency 208 budget will be developed in relation to the Incentive Based Budget model so that School administration can plan over multiple years.
- A new organization code will be created that represents the School. Funds from all sources (state salary and operating, overhead, various, VTF, IDDL, etc.) within CSES, Horticulture and PPWS will be moved under this new organization code.
- VTF funds will transition under the new organization, but SPES leadership will work with CALS Advancement to ensure that all donor wishes are being adhered to given the purpose of the funds.
- School leadership, with input from faculty, will establish clear guidelines on how these resources are managed and distributed within the School.
- The College of Agriculture and Life Sciences will commit additional faculty lines to the School in order to enhance the collaborations among School sections and integration of its programs.

6. Describe the academic programs (including instruction, research, and outreach) that would be offered or conducted by the proposed school. If recent academic program review documents are available, they may be submitted to respond to the relevant questions below.

• Describe the program priorities for the school in terms of its instruction, research, and outreach missions.

- This initiative is our vision for launching the plant and environmental sciences in the College of Agriculture and Life Sciences at Virginia Tech toward global prominence. Our three departments share many collaborative teams, and are already working across departmental lines to revise curricula at both undergraduate and graduate levels to reflect the increasingly integrative approaches of our disciplines. This new initiative will 1) create greater opportunity for coordinating multi-disciplinary interactions across teaching, research, and extension in the plant and environmental sciences; 2) revamp undergraduate curricula integrating and leveraging the expertise of faculty in PPWS, which currently does not have its own undergraduate program, 3) capitalize on and extend our expertise in contemporary research themes, and 4) lead to the construction of new state-of-the-art facilities to accommodate growth and replace inadequate space in Price, Saunders, and Smyth Halls. Our vision also includes an emphasis on engaging in crosscutting initiatives (including Destination Areas) with other units at Virginia Tech and beyond.

• Using historical enrollment data and enrollment projections, describe the past and projected enrollments in the departments that will be part of the proposed school. Relate these data to overall University trends.

- From 2011 to 2015, university undergraduate enrollment increased by almost 7%, while enrollment in CSES (CSS) and HORT have remained steady, with negligible growth (see table below). Enrollment in ENSC grew 15% during 2011-2015.

**Virginia Tech On- and Off-Campus Undergraduate Majors, Combined,
Fall Semesters 2011-2015
College of Agriculture and Life Sciences**

Major Department	Major					
		Fall 2011	Fall 2012	Fall 2013	Fall 2014	Fall 2015
Crop & Soil Environmental Science	CSES	62	55	63	6	0
	CSS	0	0	1	54	59

	ENSC	148	141	160	151	171
Horticulture	EHRT	4	20	43	48	51
	HORT	80	38	6	2	0
	LCON	2	17	30	21	18
Total		296	271	303	282	299

Note: PPWS has no undergraduate program during this time frame

- Enrollment in the Crop and Soil Environmental Sciences (CSES) major (2011-2013), which is now the Crop and Soil Science (CSS) major (2014-2015) has stayed level at about 60 undergraduates per year. Under the new Plant Sciences degree, we propose to change the name of this major to “Agronomy” and predict modest growth of up to 20% during the next five to 10 years (>70 students).
- Enrollment in the Environmental Science (ENSC) major has averaged 154 students during the past five years (2011-2015), reaching a peak of 171 in 2015. This degree and major will be maintained within the School with minor modifications to allow students more credit-hour flexibility. We also propose creation of new major named “Ecological Restoration” within the ENSC degree. With these changes, we predict enrollment could increase by up to one-third, to 250 students.
- Majors within the current Horticulture degree are Environmental Horticulture (EHRT) and Landscape Contracting (LCON). Undergraduate enrollment was highest in 2011 (86) and lowest in 2015 (69). In 2016 the name of the LCON major was changed to Landscape Horticulture and Design (LHD) to correct the student perception that they were studying a more “business-oriented” field (contracting) and emphasize the landscape management and design focus of the major. This name change is predicted to result in increased enrollment. Within the School our plan is to move these two majors under the new Plant Sciences degree, transfer the CSS-Turf option students to the LHD major, and develop a new interdisciplinary major called “Sustainable Food Systems.” Given these changes, we predict a doubling of enrollment over five to 10 years, to reach 150 students.
- A final change to undergraduate programs is development of a Plant Sciences major under the Plant Science degree. This interdisciplinary major will have concentrations in areas fundamental to Plant Science: Plant Breeding and Genetics, Plant Pathology and Weed Science, and Molecular Plant Physiology. Students in this major will be well prepared for graduate school and highly sought by agrochemical and biotechnology companies who report large future needs for these graduates (STEM Food and Agricultural Council, 2014). By 2025, we project a steady enrollment of 50 students in the Plant Sciences major.

- o In summary, our plan is to have two B.S. degree programs, Plant Science and Environmental Sciences. Under Plant Science we propose 5 majors: Agronomy, Environmental Horticulture, Landscape Horticulture and Design, Sustainable Food Systems, and Plant Sciences. We project total undergraduate enrollment of up to 270 students by 2025. Under Environmental Science we propose two majors: Environmental Sciences and Ecological Restoration. We project total undergraduate enrollment of up to 250 students. Thus, we believe that undergraduate enrollment in the School could realistically exceed 500 by 2025, compared with 300 currently.
- o Currently, each department has one PhD program. CSES has its own MS program, while MS students in HORT and PPWS enroll in the Master of Science in Life Sciences. program, managed by the college. Five-year enrollment data are shown below:

**Virginia Tech On- and Off-Campus Graduate Majors, Combined,
Fall Semesters 2006-2015
College of Agriculture and Life Sciences**

Major Department	Major	Masters					Doctoral				
		Fall 2011	Fall 2012	Fall 2013	Fall 2014	Fall 2015	Fall 2011	Fall 2012	Fall 2013	Fall 2014	Fall 2015
		Crop & Soil Environmental Science	CSES	23	23	21	31	26	13	21	25
	CSS	0	0	0	0	0	0	0	0	0	0
	ENSC	0	0	0	0	0	0	0	0	0	0
Horticulture	EHRT	0	0	0	0	0	0	0	0	0	0
	HORT	13	7	9	10	10	12	14	14	17	18
	LCON	0	0	0	0	0	0	0	0	0	0
Plant Pathology, Phys, & Weed Sci.	PPWS	7	10	8	11	16	26	22	24	24	23
Total		43	40	38	52	52	51	57	63	66	71

- o During 2011-2015, graduate program growth across departments was 20% for MS and 39% for PhD.
- o We do not anticipate short-term changes in graduate program offerings.

• Describe how the creation of the school will affect faculty workload and productivity in the component departments.

- o We anticipate that the creation of the School will enable faculty to spend more time on learning, discovery, and engagement activities, thus increasing productivity. One way of doing this is to shift some administrative duties currently carried out by faculty to support staff. Discussions are underway on how to accomplish this.

• Describe the programs offered and trends in degrees awarded for these programs.

- See above for a description of current and proposed undergraduate programs.
- Undergraduate degrees awarded during the past five years:

**Degrees Awarded 2010-11 through 2014-15
College of Agriculture and Life Sciences (Includes
First and Second Majors)
Bachelor Degrees**

	10-11	11-12	12-13	13-14	14-15
CSES	16	14	12	23	3
CSS	--	--	--	--	13
EHRT	--	5	12	16	17
ENSC	36	33	21	34	33
HORT	24	9	0	0	0
LCON	--	14	7	9	5
Total	76	75	52	82	71

- Graduate degrees awarded during the past five years:

**Degrees Awarded 2010-11 through 2014-15
College of Agriculture and Life Sciences (Includes First and Second Majors)**

Major	Masters					Doctorate				
	10-11	11-12	12-13	13-14	14-15	10-11	11-12	12-13	13-14	14-15
CSES	9	11	9	8	9	4	3	3	3	3
HORT	3	9	3	3	2	2	4	3	3	2
PPWS	0	0	7	1	4	3	8	5	7	4
Total	12	20	19	12	15	9	15	11	13	9

• List and describe any anticipated major changes to the academic programs - such as new degree programs, options or concentrations to be proposed; merger of programs/degrees; or discontinuance of degrees/programs. (Proposed changes to academic programs would need to be reviewed separately through usual governance procedures.) Estimate the effects on enrollment and resources if such changes were implemented.

- Currently, HORT and CSES offer degrees (CSES, ENSC, HORT) for about 300 undergraduate students. A new coordinated Plant Sciences degree is under development along with several new majors. The current CSES and HORT undergraduate degrees will be discontinued and merged within the proposed Plant Sciences degree. We envision a major in ecological restoration (to be housed in ENSC) that would bridge our undergraduate programs across plant and environmental sciences. With strong forecasted employment in the plant and environmental sciences, we anticipate that the new degree and majors of the School, along with a new and focused recruitment and retention strategy, will significantly increase undergraduate student enrollment. We will also seek opportunities to connect our undergraduate degree programs with the emergent University Destination Areas.
- Coordination of graduate degree programs across the plant and environmental sciences will include new marketing and recruitment activities. Such coordination, along with new resources and increased research funding, will increase visibility of our programs leading to a significant increase in graduate student enrollment. In the short term, we do not envision adding or discontinuing graduate degree programs.
- The U.S. Bureau of Labor Statistics projects 11% growth from 2014 to 2024 for environmental scientists, faster than the average for all occupations.
- Market demand for plant scientists and related professionals is projected to have sustained 15% growth to 2020 and beyond (U.S. Department of Labor). The STEM Food and Ag Council (2014) indicates that such a steady need for industry professionals is outpacing the supply of trained graduates. Since 2005, the Plant and Soil Science field has grown by nearly 20%, adding new jobs every year since 2001. The Coalition for a Sustainable Agricultural Workforce Report (2013) reports that the six largest life science companies (Bayer, Dow, Dupont-Pioneer, Dupont-Crop, Monsanto, and Syngenta) project growth in their agricultural scientists' ranks with 84% of hires needed in the disciplines of "plant sciences, plant breeding/genetics, and plant protection." All companies strongly agreed with the following statements: "The pipeline of graduates in this discipline isn't as full as it needs to be; we anticipate challenges in finding quality applicants; we are likely to have difficulty hiring the education and experience we seek; and we will need to retrain some hires in this discipline".

• **Describe changes in the nature, quantity, or interdisciplinarity of the research, scholarship, creative expression or artistic performances of faculty in the**

component departments which might be anticipated by establishment of the school.

- By capitalizing on the strengths of the current Departments of Crop and Soil Environmental Sciences (CSES), Horticulture (HORT), and Plant Pathology, Physiology, and Weed Science (PPWS), the university, college and school will make new investments to increase our capacity to tackle the many current and emerging challenges in agriculture and food security, the green industry, plant biology, and the environment. Unifying our disciplines within one academic unit will 1) promote increased interdisciplinarity, 2) provide the impetus for increasing our already considerable collaborations, and 3) greatly facilitate the creation of a new undergraduate degree in Plant Sciences and initiation of new majors within Environmental Science.
- Twenty tenure-track faculty members at six Agricultural Research and Extension Centers (ARECs) are affiliated with the current departments, and will be affiliated with the School. We will prioritize meaningful integration of these faculty colleagues into the life of the School. Ways to do this may include but are not limited to 1) educating on-campus faculty about their colleagues and discovery and engagement occurring at ARECs, 2) increased on-line course offerings for the benefit of graduate students at ARECs, 3) creating incentives for involving AREC faculty in on-campus activities and vice-versa; and 4) improvement of AREC facilities.

• Describe changes in the nature, quantity, or interdisciplinarity of the outreach and continuing education of faculty in the component departments which might be anticipated by establishment of the school.

- Priority will be given to promising interdisciplinary initiatives. Such initiatives include a new degree (Plant Sciences) and majors, unified oversight and management of graduate programs, and a seed grant program to promote development of interdisciplinary outreach and discovery. Joining our departments together will create new possibilities for interdisciplinary outreach through our Extension programs, and by increasing involvement of faculty located at ARECs—most of whom have Extension duties.

7. Proposed Evaluation Criteria

• Using the general guidelines provided in the policy document, state the evaluation criteria that will be used to assess the effectiveness of the new school in achieving the benefits that are sought by its creation.

- Policy 6150 states that “Reviews will be guided by the school's objectives and implementation plan, as well as by the relationship of the school's goals to the University Plan. Demonstrable evidence of accomplishments must be included in both the internal and external reviews. The evaluation will emphasize the degree to which the school has met the criteria and benefited the institution, with evidence such as active involvement of a critical mass of interdisciplinary faculty and students; contributions to enriching the education of students; effective interdepartmental collaboration with respect to teaching, research, and public service activities; and increased access to external resources. In addition, the review will address issues of administrative effectiveness and efficiency and fiscal management.”

**Virginia Polytechnic Institute and State University
Organizational Change**

Proposal to Establish a School of Plant and Environmental Sciences

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Virginia Polytechnic Institute and State University Organizational Change

Proposal to Establish the School of Plant and Environmental Sciences

Institution

Virginia Polytechnic Institute and State University

Nature of Proposed Change

Virginia Tech proposes to merge three existing departments to create the School of Plant and Environmental Sciences within the College of Agriculture and Life Sciences. The three existing departments merging are the Department of Crop and Soil Environmental Sciences, the Department of Horticulture, and the Department of Plant Pathology, Physiology, and Weed Science.

Background

Virginia Tech's 2012-2018 Strategic Plan, *A Plan for a New Horizon*, calls for the university to optimize efficiency, flexibility, and accountability and to consider new academic organizational structures to attain these goals. The Provost's *Academic Implementation Strategy* for the strategic plan charges us to pursue the consolidation of multiple academic programs into larger administrative structures. Consistent with these strategies is the goal of the College of Agriculture and Life Sciences to seek continuous improvement in organizational effectiveness. Merging three existing departments in the College of Agriculture and Life Sciences to create a School of Plant and Environmental Sciences within the college aligns well with these plans and goals.

Purpose of Proposed Change

The purpose of the proposed merger of the three departments into a School of Plant and Environmental Sciences is to leverage the strength of three traditionally strong departments that have multiple related disciplines, and enable greater progress in the plant and the environmental sciences. The merger will reduce duplicative efforts, increase administrative efficiency, improve the coordination of resource investment, and increase the collaborations among faculty, so that our instructional, research, and Extension programs have greater impact.

Rationale for Proposed Change

Our goal is to increase the impact of our programs in the plant and environmental sciences. The research and educational programs of the three existing departments include efforts in sustainable plant production, plant and soil health, food security, smart design of human landscapes, and promotion of environmental health. The School will bring these disciplines together in a single academic unit and will allow for increased interdisciplinary collaboration among the faculty. This increased collaboration will result in greater scholarly activity, greater external funding opportunities, enhanced coordination of Extension programming with Agricultural Research and Extension Centers, and development of innovative academic programs tailored for preparing students for rewarding and challenging careers in the plant and environmental sciences. The School will allow for more coordination and more strategic investment of resources within the college and among the plant and environmental sciences

disciplines. The increased impact of our programs will lead to increased investments from public and private sources for improving the quality of research and teaching spaces.

Curriculum/Degree Programs

The proposed School of Plant and Environmental Sciences will administer the undergraduate and graduate degrees currently offered by the three existing departments. Formation of the School will provide opportunities to explore revisions to the curriculum, including potential new degrees and majors.

Faculty

The faculty in the new School of Plant and Environmental Sciences will be composed of those faculty members with current appointments in the three departments. Faculty salaries will remain the same.

Administration

The School administration will replace the administrative structures in each of the three current departments. Administrative leadership will be provided by a Director. An Executive Committee will serve as advisory to the Director, and will include three faculty members who will serve as program directors (undergraduate program director; research and graduate program director; and extension and outreach program director), a faculty representative from each of the major disciplines of the School, and a faculty representative from the Agricultural Research and Extension Centers. Appendix A displays the current and proposed organizational charts. Appendix B contains a letter endorsing establishment of the School from the dean and associate deans of the College of Agriculture and Life Sciences.

Space

The School will utilize the existing space occupied by the three departments. We expect the new School to result in increased investments from public and private sources for improving the quality of research and teaching spaces.

Resources

All physical, financial, and personnel resources of the three departments will be combined to support School operations and programs (Table 1). These resources include those used to support the current on-campus and off-campus facilities and programs. Merging the departments will allow reallocation of resources among programs and operations because of the administrative efficiencies gained in the School. For example, the recruitment of a new School Director replaces the need for three department heads. Current department heads will return to the faculty. The merger of the three departments will enable the current business office personnel to merge into a business operations team that provides increasingly important service for the faculty. Reallocation of resources will also allow the college to renovate office space for more efficient business functions of the School, allow the School to recruit five new faculty members over the first three years, and conduct branding and marketing activities for the School.

**Table 1. Virginia Tech - College of Agriculture and Life Sciences
School of Plant and Environmental Sciences
Anticipated E&G Resources**

Annual Operations

	<u>Amount</u>	<u>Fringe</u>	<u>Total</u>
<u>Human Resources</u>			
<i>Faculty Resources:</i>			
School Head	\$195,000	\$59,234	\$254,234
Consolidated Tenure Track Faculty	\$4,844,978	\$1,699,037	\$6,544,015
New Tenure Track Faculty (years 1-3)	\$400,000	\$156,500	\$556,500
 <i>Staff and Non-Tenure Faculty Support:</i>			
Operational, Academic, and Research Support	\$2,420,900	\$1,157,701	\$3,578,601
 <u>Operational Resources</u>			
Equipment, Supplies, Materials, Travel, Wage	\$500,000		\$500,000
Farming Operations	\$136,000		\$136,000
 Anticipated Annual Operations	 <u>\$8,496,878</u>	 <u>\$3,072,471</u>	 <u>\$11,569,349</u>

One-Time Investments⁽¹⁾

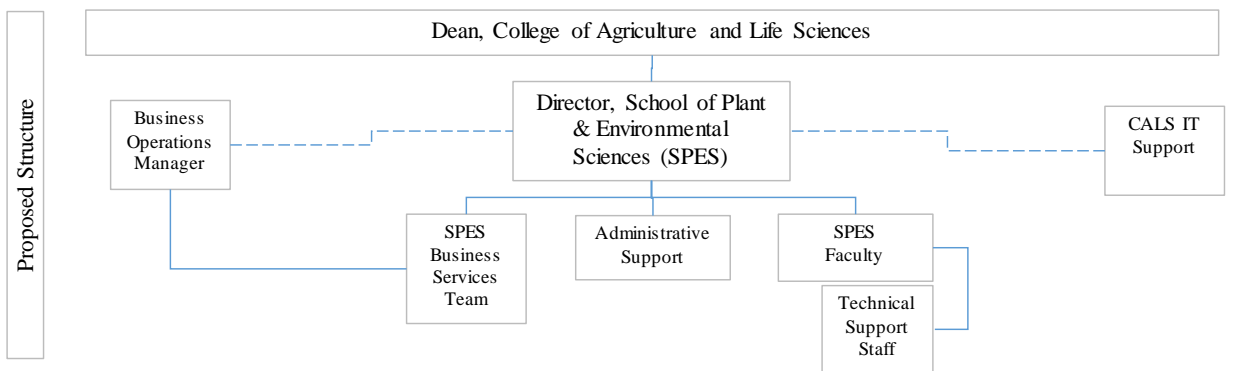
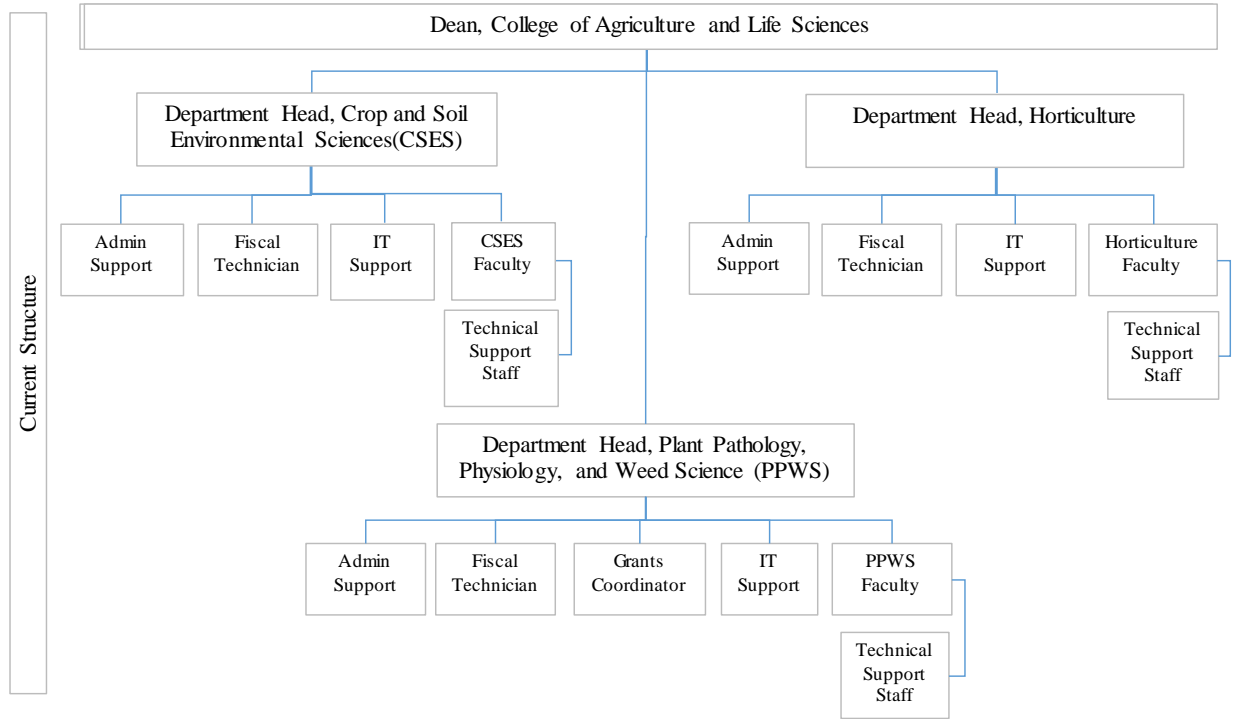
	<u>Total</u>
Faculty Startup	\$2,000,000
Facility Renovations	\$250,000
Branding and Marketing Initiative	\$50,000
 Anticipated one-time investments	 <u>\$2,300,000</u>

Notes:

(1) One-time investments managed over the first three years of the school as required by implementation.

Appendix A

Current and Proposed Organizational Charts



Appendix B

Letter of Support from the College Dean and Associate Deans



August 24, 2016

To whom it may concern:

Our vision is to create a School of Plant and Environmental Sciences within the College of Agriculture and Life Sciences that will increase the visibility, opportunities, and impact of our learning, discovery, and engagement programs. This new School is an exciting opportunity for our college to build upon the unique strengths of our programs and to create an interdisciplinary approach to solve some of our planet’s biggest challenges. By bringing together the programs and people of the Departments of Crop and Soil Environmental Sciences, Horticulture, and Plant Pathology, Physiology, and Weed Science, the College and School will make new investments to increase our capacity and tackle the many challenges in agriculture and food security, the green industry, plant biology, and the environment.

The new School will create opportunities to revise our academic programs to prepare our students for rewarding and challenging careers in the plant and environmental sciences; will foster multi-disciplinary collaboration between faculty that will allow for synergies across teaching, research, and extension and outreach; will allow strategic decision-making about hiring and resource allocation across the related disciplines; will consolidate operations for more efficient use of resources to reduce administrative burdens on faculty allowing them to focus on scholarly activities while still retaining current staffing level; will serve as a tenure home for faculty members in the three departments involved; and will align and empower our faculty and staff, so we can help solve some of the grand challenges of the future.

The three participating departments have been working together since the spring of 2015 on planning for the new School. Numerous working groups have been formed to assist in the planning and input was sought from faculty and staff members and others to develop recommendations for transitioning programs and operations to a new School.

We enthusiastically support the establishment of the School of Plant and Environmental Sciences.

Sincerely,

Alan L. Grant
Dean

Susan Sumner
Associate Dean of Academic Programs

Saied Mostaghimi
Associate Dean of Research and Graduate Studies
Director of Virginia Agricultural Experiment Station

Ed Jones
Associate Dean
Director of Virginia Cooperative Extension

Invent the Future



School of Plant and Environmental Sciences –
College of Agriculture and Life Sciences

Board of Visitors, Academic Affairs Committee | April 3, 2017



School of Plant & Environmental Sciences

- Our vision is to create a School of Plant and Environmental Sciences within the College of Agriculture and Life Sciences that will increase the visibility, opportunities, and impact of our learning, discovery, and engagement programs.
- By capitalizing on the strengths of the Departments of Crop and Soil Environmental Sciences, Horticulture, and Plant Pathology, Physiology, and Weed Science, the college and school will lead new efforts to increase our capacity and tackle the many challenges in agriculture and food security, the green industry, plant biology, and the environment.
- <http://news.cals.vt.edu/spes/>



School of Plant & Environmental Sciences

- Provides opportunities to revise academic programs to prepare our students for rewarding and challenging careers in the plant and environmental sciences;
 - Projections for job growth are strong (see next slides), so we need to recruit, retain, and graduate more students
 - 305 undergraduates currently: grow to 500 (via internal & VCCS transfers and freshmen admits) by 2022
 - Growing partnerships with Virginia State University
 - 111 graduate students currently: grow to 150 by 2022

Between 2012 and 2022, U.S. labor force will grow **10.8%** in food, agriculture, renewable natural resources, and the environment

27% of those jobs are in science, technology, engineering, and mathematics (STEM)

~15% of those jobs are in sustainable food systems

However, there will be a shortage of **22,500 graduates** from these fields with the needed diversity and experience





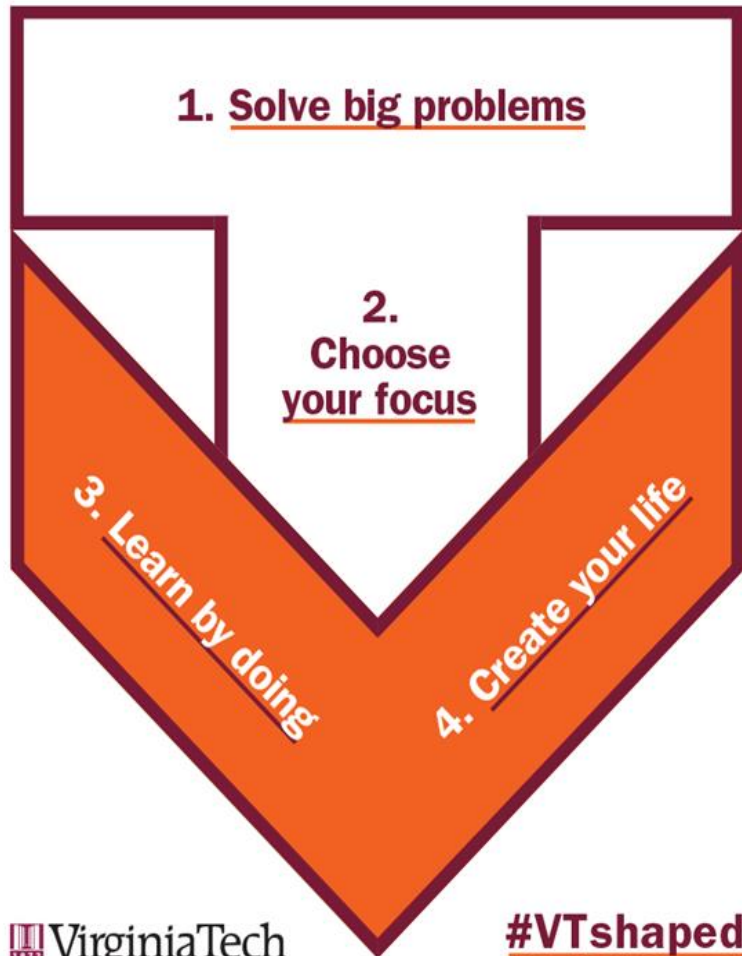
School of Plant & Environmental Sciences

Grand Challenges: Food, Water, Environment, Health nexus that our majors will address in two Destination Areas: Global Systems Science & Intelligent Infrastructure

Current Majors: Crop & Soil Sciences, Environmental Horticulture, Landscape Horticulture, Environmental Science

Updated Majors: Sustainable Food Systems, Plant Sciences, Ecological Restoration

Foci on Labs, UG Research, Study Abroad, Internships, Service Learning to find your career and *Ut Prosim* path





School of Plant & Environmental Sciences

- Encourages and optimizes multi-disciplinary collaboration among faculty that will allow for increased research and funding opportunities;
 - Enhanced collaborations should take us from \$8-9M/year in external grants to >\$10 M/year quickly
- Establishes a core area of research for new facilities, including greenhouses and the Global Systems Science Building (Human and Agricultural Bioscience Building 2), which is part of the planned Human and Agricultural Bioscience Precinct;



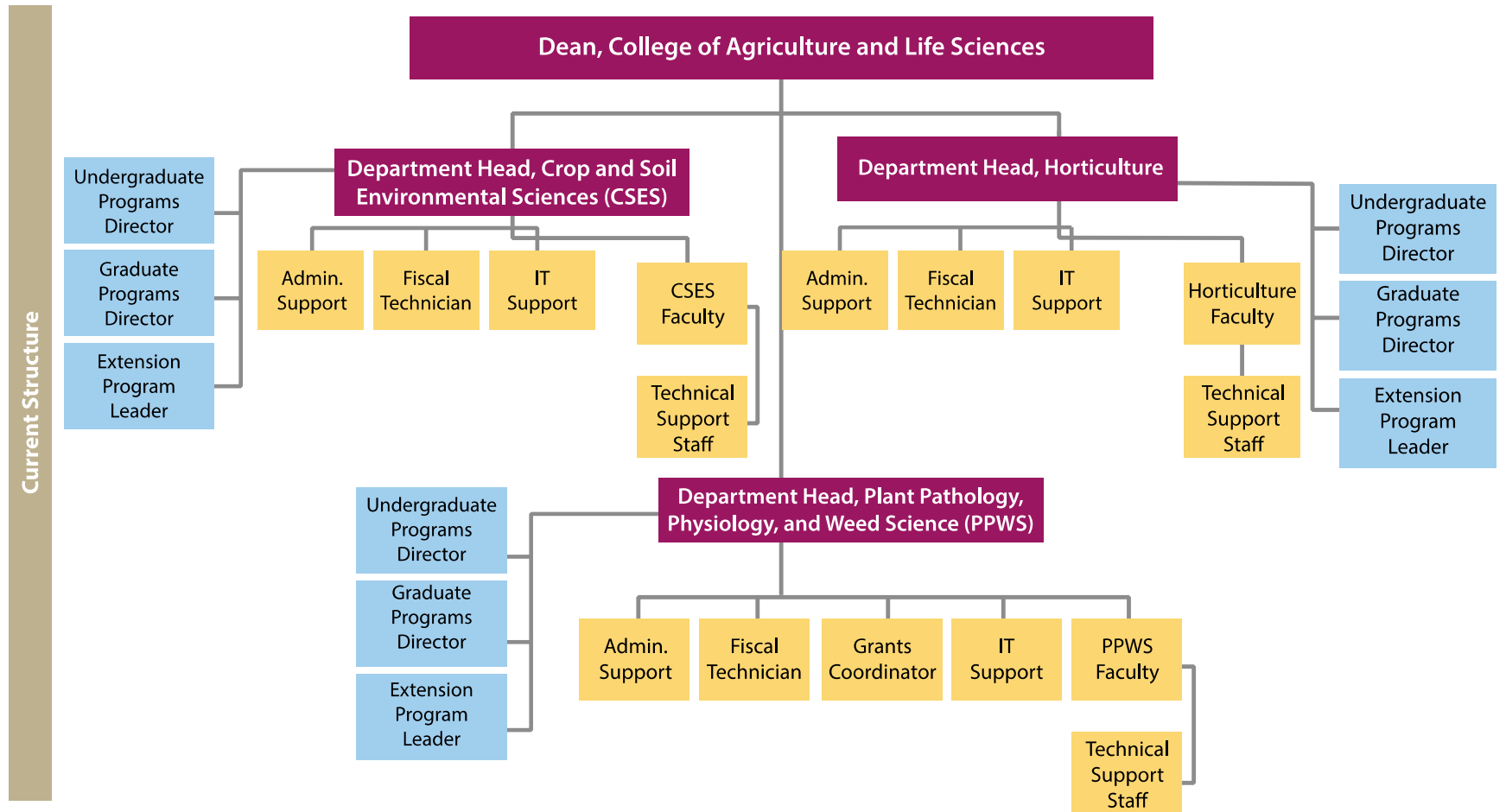
School of Plant & Environmental Sciences

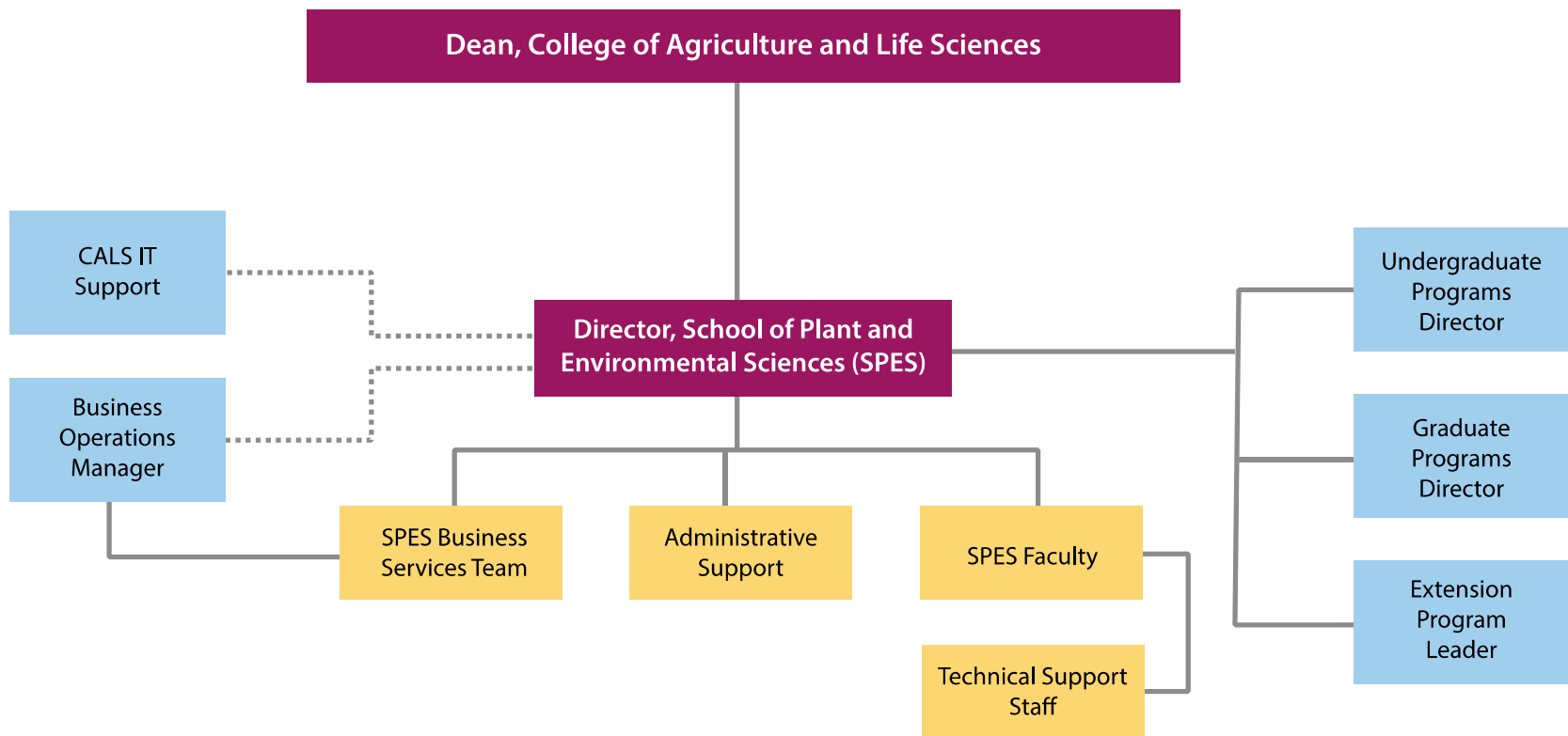
- Forms a framework to allow strategic decision-making about hiring and resource allocation. It consolidates operations for greater use of resources, which reduces administrative burdens on faculty allowing them to focus on scholarly activities while still retaining current staff;
- Serves as a tenure home for faculty members in the three departments involved; and
- Aligns and empowers our faculty and staff, so we can solve the grand challenges of the future.



School of Plant & Environmental Sciences

- Planning Committee – input for school creation
- Working Groups – detailed planning recommendations
 - Organization and Administrative Structure
 - Undergraduate Programs – Plant Sciences; Environmental Sciences
 - Graduate Programs
 - Space & Facilities
 - Faculty Governance
 - Staff & Support Personnel
 - AREC Integration
 - Finance & Operations
 - Advancement
- Timeline - July 2017





Proposed Structure



RECOMMENDATION:

That the above resolution recommending the establishment of the School of Plant and Environmental Sciences at Virginia Tech be approved.

April 3, 2017