

**Extension and Outreach in the Contract Colleges
Cornell University**

Report Prepared by the Provost's Task Force on Cornell Extension

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0. Executive Summary	4
0.1 Overview	4
0.2 University Land Grant History, State Relations, and Geography	4
0.3 Organizational Change, Leadership, and Staffing	5
0.4 Research and Funding	5
0.5 Communications.....	5
0.6 Development/Fundraising	6
0.7 Observations and Strategic Considerations	6
1. Introduction	9
1.1 Charge and Membership of the Extension Task Force	9
1.2 Contextual Background and History	10
1.2.1 The Land Grant University	10
1.2.2 The Role of the University in Public Engagement	11
1.3 Prior Reviews of Extension and Outreach at Cornell.....	11
1.3.1 1986 Review of Cornell Cooperative Extension.....	12
1.3.2 2003 Review of Cornell’s Land Grant Mission	13
2. Mission, Structure and Financing of Extension and Outreach in the Contract	
Colleges	13
2.1 Missions and Strategies of Cornell’s Contract Colleges	13
2.1.1 CALS.....	13
2.1.2 CHE.....	14
2.1.3 CVM.....	14
2.1.4 ILR	14
2.2 Major Organizational Units/Infrastructure of Extension and Outreach	15
2.2.2 CALS Organization and Infrastructure	18
2.2.3 CHE Organization and Infrastructure	22
2.2.4 CVM Organization and Infrastructure	23
2.2.5 ILR Organization and Infrastructure.....	24
2.3.2 Expenditures.....	29
2.3.3 Revenues	30
2.4 Cornell Cooperative Extension	32
3. Extension and Outreach Activities and Services	33
3.1 Research in Relation to Extension and Outreach	33
3.1.1 Research Overviews by College.....	34
3.1.1.1 CALS Research	35
3.1.1.2 CHE Research.....	35
3.1.1.3 CVM Research.....	35
3.1.1.4 ILR Research.....	36
3.2 Organized Educational Programs in Extension and Outreach.....	36
3.2.1 Education (Non-degree) Programs Overview by Contract College	37

3.2.1.1	CALS Education	37
3.2.1.2	CHE Education	38
3.2.1.3	CVM Education	40
3.2.1.4	ILR Education.....	40
3.3	Public Discourse and Technical Assistance	41
3.4	Student Involvement in Extension and Outreach	42
4.	Summary and Conclusions.....	44
4.1	University Land Grant History, State Relations, and Geography	45
4.2	Organizational Change, Leadership, and Staffing	45
4.3	Research and Funding	46
4.4	Communications.....	46
4.5	Development/Fundraising	47
4.6	Observations and Strategic Considerations	47
5.	Appendix	50
	APPENDIX A: ASSUMPTIONS AND CONSIDERATIONS UNDERLYING EXPENDITURE	
	CALCULATIONS FOR CONTRACT COLLEGE EXTENSION AND OUTREACH	50

0. EXECUTIVE SUMMARY

0.1 OVERVIEW

This report summarizes a systematic review of extension and outreach in the contract colleges of Cornell University conducted between 2015 and 2017. It is intended as a starting point for needs assessment and strategic planning.

The committee explored several parameters of extension and outreach, including its organization, programs, student participation, and resources. Despite the operational and disciplinary differences across the contract colleges, a SWOT exercise readily identified more similarities than differences. The collective input from the Task Force was distributed into five areas, yielding several recommendations, all of which are described below.

0.2 UNIVERSITY LAND GRANT HISTORY, STATE RELATIONS, AND GEOGRAPHY

Cornell's longstanding reputation for excellence in service to the state and nation is a strength of our extension and outreach programs. Multidisciplinary approaches to the application of knowledge continue to describe Cornell's commitment to extension and outreach. Our history also manifests as a limitation, demonstrated in a tendency to cling to historical priorities and a lack of agility in building toward future needs that may differ from those of the past.

The diversity and quantity of extension and outreach at Cornell is a strength. The range of constituencies served is large, including families, workers, practitioners, growers, industry groups, and policy makers at all levels. It is challenging to meet demands from so many sectors. The decentralized structure of Cornell further challenges collaboration and resource sharing across programs. There are obvious themes of emphasis evident in the current environment that would be strengthened by better communication and strategic fostering of collaboration across units.

The geographic positioning of programs is a strength: the College of Agriculture and Life Sciences (CAL S)'and College of Human Ecology (CHE)'s Cooperative Extension offices exist in all counties and 3 of 5 boroughs of New York City; the School of Industrial and Labor Relations (ILR) has offices in Buffalo and New York City; CAL S and the College of Veterinary Medicine (CVM) run programs in the heart of New York's milk and dairy industry, and new efforts across all the contract colleges target urban centers. Opportunities to co-locate and optimize use of physical space should be identified and embraced.

Areas of opportunity for collaboration and innovation include deployment of technology; linking domestic programs to international programs where there is alignment of need and interest; regionalization of programming to better leverage and share resources; better connecting students to extension programs; and leveraging our strengths across large themes such as food,

health, climate change. High levels of student participation in community-engaged learning at the current time aligns well with the outreach and extension mission.

0.3 ORGANIZATIONAL CHANGE, LEADERSHIP, AND STAFFING

University and college leadership is viewed as supportive of the mission in outreach and extension. Nevertheless, in the larger context of the university, faculty and staff are challenged to balance and uphold multiple missions in extension and outreach, and teaching and research. Public engagement is often viewed by faculty and staff as being in competition, or incompatible with research accomplishment. Rewards for creativity and innovation in extension and outreach are not always evident, while rewards for accomplishment in research are clear. This has a negative impact on morale within the extension and outreach campus community.

In the current period and foreseeable future, unprecedented faculty renewal is occurring across the university. While this may be an opportunity for organizational change to address issues surrounding the allocation of effort across competing demands, the Task Force is concerned that without strategic consideration of extension succession, new faculty could be hired who disproportionately focus on other commitments, to the detriment of extension and outreach.

0.4 RESEARCH AND FUNDING

There is reciprocal benefit to be realized between strong research and strong extension and outreach. Strong extension programs can be drivers of research grant funding. With flat state operating support for the contract colleges over the past several years and greater competition for grants and contracts, funding for programs in extension and outreach is a limiting factor. There is need for new funding models. Philanthropy from alumni and grant-making foundations is viewed as an underutilized resource. Awareness and adoption of practices employed successfully in other programs on campus would promote further diversification of the funding portfolio. In the technical assistance and professional training arenas where funding comes from fee-for-service charges, competition from non-profits and for-profit businesses is increasing. These providers may be able to offer less expensive services (perhaps of lower quality, but this may not be paramount in the mind of the user) than contract colleges. Sharing of expertise and experiences relating to securing different types of revenue would help all four units during this era when a diversified funding portfolio is an essential strategy.

0.5 COMMUNICATIONS

Effective communication to internal and external audiences is essential to successful and sustainable extension, outreach and engagement activities. Communication of the impacts of these programs is hindered by shortfalls in defining and quantifying efforts and impacts, and a limited capacity for effectively “telling the story.” The brand and value of extension and outreach is not well understood and messaging feels stale and dated. This reinforces the largely

unfounded impression that Cornell is clinging to history and not forward looking. A branding and communications strategy and implementation effort is needed at the level of the university across our extension, outreach and engagement activities.

Digital technology expands the reach of programs beyond the borders of the state, enabling New Yorkers to learn from a vast array of sources available by internet, and allowing Cornell to reach people around the world. Although there has been improvement in implementing contemporary approaches to remote communication and education (for example, CCE webinars and the widespread use of video conferencing) it is essential that extension and outreach use the most effective forms of communication and strategies to reach audiences in ways that ‘address the needs of the day’. Innovation has been demonstrated in some areas by units that have made significant investments of resources for a particular project. It is hoped that the merger of the Center for Teaching Excellence and Academic Technologies will facilitate the process of implementing digital solutions for extension and outreach. However, it is still unclear where the support (financial, time, and technical) will come from; getting past these hurdles is critical to expansion and development of new programs and new audiences.

Although metrics have been identified and are used in individual programs, preparation of this report was challenged by the limited availability of data at an institutional level. Non-laborious methods and tools to describe and quantify extension and outreach across the contract colleges would improve our ability to communicate and assess their efforts and impacts.

0.6 DEVELOPMENT/FUNDRAISING

Alumni value the work of extension and outreach in these colleges and schools, yet gifts are less than 10% of revenue for any college extension and outreach programming. Stronger partnership between extension and Alumni Affairs and Development at the university and the college level would be advantageous. Targeted levels for fundraising that support student participation in the larger mission of extension and outreach would be an important step in further strengthening these mission-critical activities.

0.7 OBSERVATIONS AND STRATEGIC CONSIDERATIONS

The body of the report provides data and analysis as well as more nuanced conclusions and recommendations; however, the review process revealed some high-level insights that raise key strategic considerations, which are summarized in the chart below.

OBSERVATIONS	CONSIDERATIONS
Approaches and support structures for extension and outreach are need and context dependent. There is variation across the contract colleges in their approach to extension and outreach including size/scope, staffing, and funding.	There is increasing need to diversify the portfolio of funding and delivery models for extension and outreach, with potential for successful models employed in one unit to be adopted by others. The mission-driven nature of the work is an important differentiator between Land Grant universities and other institutions such as consultancies and for-profits that increasingly compete with universities for talent, clients, and resources.
Cornell's decentralized nature risks creation of barriers, duplicated effort and redundant infrastructure investments.	Opportunities exist to leverage and share infrastructure resources – physical locations, technology, relationships.
There are a number of themes – e.g. food systems, economic development, health, sustainability, vulnerable populations – that cut across multiple colleges.	It is important to identify barriers that prevent effective thematic collaborations across colleges and find ways to advance cross-unit coordination.
The age demographic of faculty and staff at the university is inclusive of extension faculty (tenure track and extension track) and support staff. Many individuals are approaching retirement age and succession plans are needed at the individual, unit and strategic levels.	The distribution of effort in extension and outreach across tenure track and non-tenure track titles likely influences the connection of faculty research to extension and outreach missions. Connecting these is a great strength of a Land Grant institution that is a Research 1 University.
Historically based and dictated by statute, contract college extension and outreach is NYS focused, although with time the work has fueled growth into national and international contexts.	There may be value in being more intentional in transferring themes and approaches of state-oriented extension and outreach to national and international contexts.
Assessment and evaluation of outputs and impacts of extension and outreach are important both for program improvement and for communicating value.	There is an opportunity to share expertise and effort to address the need for data collection processes and metrics that will enable programs to better monitor, document, or scale learnings of operational success. Current metrics tend to be input metrics of headcounts or constituents served rather than metrics of change or improvement. New metrics for documenting societal impact could help gain support (government and philanthropic) for, and tell the successes of, extension and outreach.

In summary, there are opportunities for shared learning and collaboration, including leveraging of resources and strategic planning in thematic areas that are being addressed across multiple disciplines and dimensions in the contract colleges. Faculty renewal is an important consideration in strategic planning. Creation of a facilitating vehicle, such as a standing committee, is needed. Research and analysis of outcomes and impacts is also needed, both as inputs for strategic planning and for improved communication (to the campus, to higher education, and to the public) of the contributions being made in extension and outreach.

1. INTRODUCTION

This report summarizes a systematic review of extension and outreach within the contract colleges of Cornell University: College of Agriculture and Life Sciences (CAL S); College of Human Ecology (CHE); College of Veterinary Medicine (CVM); and the School of Industrial and Labor Relations (ILR). Conducted between 2015 and 2017 the report is intended to inform readers of the current status and to inform future efforts to address needs assessment and strategic planning in outreach and extension.

We found that system level quantitative data were limited overall and much of the information in the report is qualitative and descriptive. Although the scope of the report is broad, it was not possible to include all programs and activities and the description of extension and outreach is not comprehensive.

1.1 CHARGE AND MEMBERSHIP OF THE EXTENSION TASK FORCE

In late 2014, Provost Kent Fuchs approved a request from Vice Provost Judy Appleton to establish a small campus-based task force in order to conduct a contemporary review of extension and outreach. The task force was to focus on the four contract colleges and Cornell Cooperative Extension (CCE) as it operates within the contract college structure. (Note: While the report briefly describes the New York City Cornell Cooperative Extension Office (CUCE – NYC), and the administrative operational unit overseeing the network of Cornell Cooperative Extension Associations (that exist as separate legal entities), it does not cover the extensive work performed by the Associations through their staff and volunteers. Detailed information about CCE is available in the CCE Annual Report.)

The group was convened in 2015 and approached these questions systemically: how are extension and outreach executed and supported in our respective units, what are our shared strengths, where are our opportunities, how do extension and outreach relate to our academic and research missions, and what changes might make Cornell stronger? The group operated on the assumption that the different units conduct extension and outreach in ways that are relevant to their disciplinary expertise and did not attempt to identify specific societal problems or needs that extension should address. They considered their work a starting point, surfacing questions that might be addressed through a targeted needs assessment or strategic planning processes.

The specific charge to the committee was to engage in an informed and creative process in order to:

- generate an understanding of Cornell's investment in extension and outreach.
- inventory how the different contract colleges address, prioritize and collaborate to meet their extension missions.
- explore opportunities for students to learn and contribute to extension.

- consider how extension at Cornell could be better communicated internally and externally.
- prepare a report with recommendations to submit to the Provost.

The membership of the committee included Vice Provost Judith Appleton and the Provost’s Fellows for Public Engagement, Rebecca Stoltzfus and Diane Burton. The task force was comprised of representatives from the four contract colleges.

- College of Agriculture and Life Sciences (CALS): Christine Smart, Chris Watkins
- College of Human Ecology (CHE): Rachael Dunifon, John Eckenrode, Jamie Dollahite
- College of Veterinary Medicine (CVM): Elizabeth Berliner, Daryl Nydam
- School of Industrial and Labor Relations (ILR): Linda Barrington, Susanne Bruyere
- Ad hoc members: Davina Desnoes, Rose Wright (Budget and Planning)

1.2 CONTEXTUAL BACKGROUND AND HISTORY

1.2.1 The Land Grant University

Cornell was founded as a Land Grant University in 1865 through the federal Morrill Act. The stated purpose of the Morrill Act was to create institutions across the United States

“where the leading object shall be, without excluding other scientific and classical studies and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, . . . in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life.”

The language of ‘several pursuits and professions in life’ was purposeful and Morrill personally reflected that

“it would be a mistake to suppose it was intended that every student should become either a farmer or a mechanic when the design comprehended not only instruction for those who may hold the plow or follow a trade, but such instruction as any person might need—with “the world all before them where to choose”—and without the exclusion of those who might prefer to adhere to the classics.”¹

In Ezra Cornell’s words, he founded an institution where “any person can find instruction in any study”. Thus, the embrace of access to education and the relevance of the university to the needs of the day have been clear in our mission for 150 years. Learning and research that are both informed by society and relevant to addressing the needs of society are central to the ethos of Cornell.

¹ Justin S. Morrill, Address delivered at the Massachusetts Agricultural College, June 21, 1887.

1.2.2 The Role of the University in Public Engagement

Between 1996 and 2000, a group of 25 presidents and chancellors of public universities came together as the Kellogg Commission on the Future of State and Land Grant Universities under the umbrella of the Association of Public and Land Grant Universities (at that time known as the National Association of State Universities and Land Grant Colleges) and the financial sponsorship of the Kellogg Foundation. Their work culminated in a set of prescribed reforms. One of these was to embrace the spirit of public engagement upon which the Land Grant system was founded.²

The 1999 Kellogg Commission report, “Returning to Our Roots: The Engaged Institution” emphasized the necessity for universities to go beyond service and outreach to ‘engagement’ and to become “more sympathetically and productively” involved with communities. It described the public’s view that universities were unresponsive and out of date. The Commission emphasized the diversity and breadth of societal need and the importance of focus on current problems of the day, including health, economic development, families and children, rural communities, and agriculture and food.

While the Kellogg Commission is viewed as being a catalyst for reforms, a similar sentiment had been expressed by a Cornell focused Commission in 1989 (see below).

Opinions expressed elsewhere³ emphasize the broad issue of health as being a critical need in the 21st century.

While the members of the 2015 task force did not explicitly explore or attempt to define the most important challenges that extension should be addressing today, many identified by past reports persist. Climate change, risk of global pandemics, marginalized populations, inequality, and technology’s dramatic impact on the “pursuits and professions in life” are obvious additional dilemmas pervasive in public discourse today. Thus, while the specific social problems evolve, the need for engagement and outreach continues as a core element of all Land Grant universities.

1.3 PRIOR REVIEWS OF EXTENSION AND OUTREACH AT CORNELL

There have been two major university-sponsored reviews of our extension and outreach programs in the past 30 years, one in 1986 focused on Cornell Cooperative Extension and one in 2002-2003 focused on the Land Grant mission of the university.

² <http://www.aplu.org/projects-and-initiatives/economic-development-and-community-engagement/Kellogg%20Commission%20on%20the%20Future%20of%20State%20and%20Land-Grant%20Universities/index.html>

³ www.nceea.org/app/download/.../2015+Battelle+Highlights-3+page+9+11+15.pdf

1.3.1 1986 Review of Cornell Cooperative Extension

President Frank Rhodes appointed an external Commission in 1986 “to examine the future mission, program, and relationships of Cornell Cooperative Extension.” Members of the Commission included a representative from a county Cooperative Extension Association, the Manhattan Borough President, a university president emeritus, Cornell trustees, leaders from the Farm Bureau, SUNY administration and NYS government, industry, a state senator, a state representative and the president of the NYC Board of Education.

Their report ends its historical overview of the Morrill Act (creating the Land Grant institutions), Hatch Act (supplying funding for agricultural research) and Smith-Lever Act (supplying funding for extension in agriculture and home economics), with a statement whereby Morrill proposed the powerful idea of linking the expertise of the university to the problem of the day, specifically, agriculture:

“The draftsmen of the Morrill Act were wise enough to foresee that this might not always be so. They carefully included in their stated objective the promotion of ‘the liberal and practical education of the industrial classes in the several pursuits and professions in life.’”

This reflects an intention to allow Land Grant institutions to address the most important problems of the day, problems that may change over time.

The recommendations of the 1986 Commission reflect this interpretation. In addition to specific recommendations regarding technology, regional approaches for CCE Associations, and expansion into metropolitan areas, the Commission strongly supported the program priorities that the Cooperative Extension staff and advisory committees had identified at that time, including: agriculture, economic development, environment, health, human development, and support for families and communities. They encouraged partnership of Cooperative Extension with government and non-profit organizations and a greater presence in NYC. Implementation of some of these recommendations can be seen in practice today, for example, the CU CE office in NYC.

Finally, the Commission also offered thoughtful consideration of useful organizational changes on campus, including a centralized administrative structure for all extension activities, suggesting that these may be placed under CCE, or overseen by a new, provost-level administrative structure that included CCE. Expressing concern about either of these models, they stated a preference for a five-year experiment with a federated extension center that would bring together all units conducting extension-type programs, promoting collaboration and coordination across campus. It does not appear that this experiment was conducted, or if it was, the structure was not sustained.

1.3.2 2003 Review of Cornell's Land Grant Mission

In 2002-2003, the President Hunter Rawlings III and Provost Bidy Martin charged five panels to undertake a review of the Land Grant mission of the university. Although the Land Grant mission is broader than extension and outreach, the attention of the panels was very focused on these areas, with emphasis on K-12 education and technology transfer. Programs in the contract colleges and engineering were considered. This large and comprehensive review was led by Vice Provost for Land Grant Affairs and Special Assistant to the President, Francille M. Firebaugh.

Some of the recommendations in the 2003 report have been implemented, while some of the challenges identified in the review are still evident in the university today. For example, a recommendation for integration of teaching, research and outreach functions through service learning and public scholarship is a central theme in the development of Engaged Cornell. In contrast, a recommendation for prioritization of K-12 education has not been met and the Department of Education in CALS has been closed. Connectivity between CCE Associations and campus faculty has been successful in some areas (e.g. CHE's Bronfenbrenner Center for Translational Research), yet remains a challenge in other areas, even within the contract colleges. Centralized university support and management of licensing, patents, conflict of interest and intellectual property has been implemented and entrepreneurship has expanded in academic and research programs during the intervening years.

2. MISSION, STRUCTURE AND FINANCING OF EXTENSION AND OUTREACH IN THE CONTRACT COLLEGES

The State of New York contracts with Cornell University, a private entity, to deliver the Land Grant mission for the state. The four contract colleges receive support from NYS in the form of funds to support operations and the physical plant. As for all the academic units at Cornell, the contract colleges function independently of, but in collaboration with one another, in ways that are strongly shaped by their missions and histories.

2.1 MISSIONS AND STRATEGIES OF CORNELL'S CONTRACT COLLEGES

As seen through their respective missions, each of the contract colleges is distinct yet all embrace a strong obligation of extension, outreach and engagement. CALS and CHE are jointly responsible for CCE, which is part of the Land Grant system; CCE is an educational partnership between county, state and federal governments that is administered by Cornell University as the agent of NYS.

2.1.1 CALS

CALS' overarching strategic objective is to propel discovery and to promote the synergy of disciplinary knowledge in the agricultural, biological, physical, environmental and social sciences, thereby leading science and education toward a resilient future. CALS embraces a

mission of creating and disseminating knowledge with public purpose. For more than a century, CALS has translated robust and responsible scientific exploration into sustainable innovation for the public good. The broad expertise and programmatic reach of the college aim to: (i) impart a world-class education and instill passion for life-long learning; (ii) further agricultural systems to ensure food and nutrition security, human health, and sustainability; (iii) advance knowledge in the life sciences about the unity and diversity of life; (iv) foster the understanding of the economy and society for individual and community well-being; and (v) steward environmental resources and sustainable energy solutions.

2.1.2 CHE

The mission of CHE is to understand and improve human lives by exploring and shaping human connections to the natural, social and built environments. Faculty, students, and staff explore the human dimensions of social and natural sciences, design, nutrition and health, public policy, society, family, community, and other realms, all in pursuit of knowledge to make the world a better place. Research themes include sustainability, health and design, public health policy and nutrition, community and family policy, economics and federal policy, fashion and technology, neuroscience and human development, and lifespan development. Using Cornell's far-reaching extension network and the college's translational research methods, CHE engages with communities and families, policymakers and industry partners, in carrying out its mission, ensuring that its work reaches those who need it most.

2.1.3 CVM

The mission of CVM is to advance veterinary medicine at the interface of discovery and application, improving the health and wellbeing of animals and people through education, research, and professional and public service. The College values scholarship and research across the full spectrum from molecular to cellular to medical application. CVM endorses the concept of One Health in advancing the understanding of both animal and human health, encourages and fosters open collaboration across disciplines and institutional boundaries, and seeks to integrate discovery and application in order to deliver the greatest possible benefits to society.

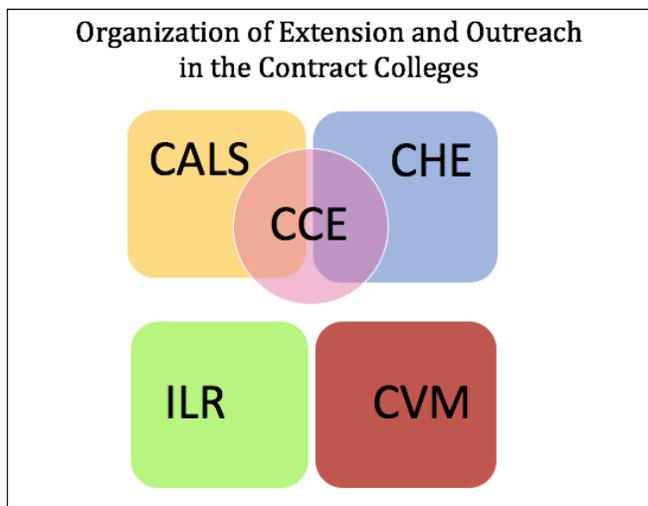
2.1.4 ILR

The mission of ILR is to advance the world of work by preparing leaders, informing employment, labor and work-related policy and practice to improve working lives. The school offers undergraduate and graduate education as well as career-long learning for professionals. Faculty at ILR come from various disciplines, including economics, history, political science, law, psychology and sociology, and applied fields, such as human resource management, labor relations, and organizational behavior. As the leading applied social sciences college focused on employment and work, ILR generates and disseminates cutting-edge research and insight that informs, and is informed by, substantial outreach activities and service to external constituents.

2.2 MAJOR ORGANIZATIONAL UNITS/INFRASTRUCTURE OF EXTENSION AND OUTREACH

Each of the contract colleges deliver their extension, outreach and engagement services through different staffing models and organizational structures. We introduce the internal structural units here, beginning with CCE as it is overseen by both CALS and CHE (illustrated in Figure 1, below). Staffing, expenditures and revenues will be discussed in the next section.

Figure 1: Organization of Extension and Outreach



2.2.1 CCE Organization and Infrastructure

CCE represents one of the formal methods of extending the research of CALS and CHE (Figure 1), to the citizens of New York as defined by state law (County Law 224), and as part of the National Institute of Food and Agriculture (NIFA) funding via Smith-Lever Act appropriations to New York. The national extension system is a formal partnership between federal, state and county partners. Federal and state governments provide \$12 million and \$3.9 million, respectively, and this funding is leveraged to generate approximately \$43 million by our county partners. CCE is comprised of 57 county-based associations, each of which is an independent employer, governed by an elected Board of Directors, and is responsive to county government with oversight from Cornell University. All associations work to meet local needs as well as state and national goals.

Knowledge extended to the state, nationally and internationally, is primarily, but not exclusively, based on research carried out at the Agriculture Experiment Stations based in Geneva and Ithaca. In addition to the Smith-Lever funding that is used to provide oversight to the associations on behalf of Cornell University, the majority of the funding is used to support 4-H, CUCE-NYC, the Expanded Food and Nutrition Education Program (EFNEP), the CCE Agriculture Teams, and the Extension Disaster Education Network (EDEN), all of which are described in greater detail in the sections below. Other funds are used to support extension programming by CALS and CHE

faculty on a competitive basis, using mechanisms similar to the allocation of Hatch Act Federal Capacity funds. Where appropriate, integrated research and extension projects are funded by the Experiment Stations in partnership with CCE.

The CCE Office also manages **Program Work Teams**, which are groups of faculty and staff, extension educators, and external stakeholders who collaborate to identify issues, study needs, and create educational materials. Team members design learning experiences that address issues and needs within specific content areas. Currently, 38 teams are active with content areas that include: Agricultural Marketing and Community Development; Community-Based Biodiversity and Habitat Conservation; Family Economics and Resource Management; Risk and Thriving in Adolescence; Small Farms; Soil Health - Vegetable Production Systems; Tree Fruit and Berries; Vegetable Crops; Viticulture and Enology; and Watershed-Based Management of Water Resources.

Key CCE programs shared by CALS and CHE are described below:

The **NYS 4-H program**, which is administered by CCE, is situated in the CHE's Bronfenbrenner Center for Translational Research (BCTR). The program provides oversight, program support and management to a large and diverse youth development program. 4-H reached more than 170,000 youth ages 5-19 in 2016 in the core mission areas of STEM, Healthy Living, Civic Engagement, and Agriculture and Food System Sustainability. 4-H programs are offered in every NYS county and all five boroughs of New York City, working through the CCE county-based Association structure and the CUCE-NYC 4-H program. Approximately 200 4-H educators, 10,000 volunteers, and hundreds of community based organizations are engaged in program delivery that takes place in community-based 4-H Clubs, school-based programs, and 4-H camping programs. NYS 4-H, among the largest and most diverse 4-H programs in the U.S., is part of a national and international 4-H network that reached more than 6 million youth in 2016.

The **CUCE-NYC** office, administered by CHE, is supported by Smith Lever dollars, and office rental is supported by CALS. In addition, the statewide diversity coordinator housed in the NYC and office is funded by CCE. CUCE-NYC offers programs in Family and Youth development; Diversity and Parenting; Youth Civic Engagement; and Nutrition and Health. The program reaches families in all five boroughs of New York City by working in partnership with community organizations, schools, job training programs, faith based organizations and emergency food assistance providers. Approximately 170,000 youth are engaged each year. CHE has partnered with 4-H to develop innovative programming such as the Program for Research on Youth Development and Engagement (PRDYE), which is described in greater detail in the CHE section below.

The Expanded Food and Nutrition Education Program (EFNEP), located in CHE, but funded through CCE, is a federally funded nutrition education program for limited-resource youth and families delivered through Cooperative Extension in every state and U.S. territory.

EFNEP offers hands-on interactive workshops to help participants improve food and physical activity behaviors, food resource management, food safety, and food security. Programs serve income eligible parents, caregivers and expecting mothers, as well as children and teens. Adult participants learn how to make food choices to improve the nutritional quality of the meals they serve their families. Through an experiential learning process, they increase their ability to select and buy food; gain skills in food preparation storage and sanitation; and learn to better manage their food budgets and related resources. Youth participants are engaged in a series of lessons designed to develop mastery, belonging, independence, and generosity. In addition to nutrition, food preparation, and food safety, youth topics may also include strategies for reducing screen time and being more physically active. EFNEP is delivered in a series of lessons, facilitated by frontline educators who, for the most part, come from the communities they serve. Over 11,000 NYS adults and youth are engaged in these curriculum-based multisession workshops.

CCE's nine regional agriculture teams provide research-based information, programs, and technical assistance to dairy, field crop, vegetable, tree fruit and grape producers all around the state. Team members are Cornell University employees that work closely with faculty, and represent a regional sharing model managed by CCE. Funding of the teams is primarily provided by county Associations (65%) along with Smith-Lever support and competitive grants and contracts. In addition, two new teams (Harvest NY), funded by NYS grants and contracts have been created in Western and Northern NY. These teams are focused on workforce development and business expansion projects in areas such as livestock processing and marketing, dairy food processing, dairy modernization and economic development.

The NY Extension Disaster Education Network (EDEN), administered by CCE is a national project funded through Smith-Lever dollars. EDEN is a collaborative educational network dedicated to educating NYS residents about preventing, preparing for, and recovering from emergencies and disasters that could affect their families and communities. NY EDEN works to link the emergency preparedness resources of New York agencies and organizations with the community networking and outreach capabilities of CCE Education Centers throughout the state.

The Military Families Learning Network (MFLN) is an example of CCE programming serving New York's veteran and military family audience. The program is supported by the NIFA, USDA, and the Office of Family Readiness Policy, and U.S. Department of Defense. The MFLN engages military family service providers and CCE educators in the exchange of experiences and research to enhance professional impact and encourage professional growth. The Network is comprised of seven major concentration areas, one of which is called Community Capacity Building, for which Cornell is the lead Land Grant university. The work of MFLN presents regular opportunities for CCE to serve as a bridge between CALS and CHE, enhancing connections between county associations and both colleges through its content and programming.

2.2.2 CALS Organization and Infrastructure

Research carried out throughout CALS is translated into sustainable innovation for the public good. Extension and outreach activities in CALS are wide ranging statewide, nationally and internationally, and some, but not all of this research, has formal connection to CCE. Strength in outreach provides increased competitiveness of faculty for funding opportunities.

Extension in CALS is woven into faculty positions of many departments. Identification of extension needs is carried out by faculty. Percentage efforts of individuals for research, teaching and extension are negotiated with the chairs of each department, unit, or school, who also evaluate performance on an annual basis. The chairs report to the senior associate deans and the dean. In addition, units that provide specific extension programming report to both CALS and CCE.

Research is funded federally (NIFA, NIH, NSF), and at the state level both directly and indirectly through funding agencies such as the NY Farm Viability Institute and other foundations. A significant generator of research is based on investments into faculty projects by the Agricultural Experiment Stations.

The Agricultural Experiment Stations enable Cornell faculty to advance research on food and agriculture systems; the environment; applied economics; and community and individual development, thereby improving people's lives. There are two agricultural experiment stations at Cornell: the Cornell University Agricultural Experiment Station (CUAES), located primarily on and around the Ithaca campus, and the New York State Agricultural Experiment Station (NYSAES), located at Geneva, NY. The two experiment stations share the broad common purpose identified above and work towards this mission in two ways: 1) by jointly administering approximately \$6M annually in federal research funding and 2) by managing thousands of acres of farmland, and many greenhouses and growth chambers used by researchers to conduct experiments.

CUAES has historically engaged faculty in CALS, CHE, and CVM. However, to catalyze a broader set of collaborations, faculty in the College of Information Science and College of Engineering have recently also been eligible for research funding from the experiment stations. NYSAES differs from CUAES in that it is a campus and organization with faculty and staff from three academic units (School of Integrated Plant Science, Entomology and Food Science) who collectively focus on leading science-based innovation in horticultural crops and the foods, beverages and products derived from them. NYSAES emphasizes an integrated approach towards fostering the growth, resilience and economic vitality of industries based on horticultural crops. To do so, faculty and staff conduct research leading to cross-disciplinary solutions for sustainable crop production, dynamic and healthy food systems, and innovative products derived from horticultural crops. They integrate new technologies and practices to foster economic

growth and resilient crop and food systems and help to educate the future agriculture and food systems workforce.

Each Land Grant university across the United States, including Cornell, receives an annual allocation from the USDA's National Institute of Food and Agriculture (NIFA) known as Federal Capacity Funds. Dispersed through agricultural experiment stations and cooperative extension offices in each state, the capacity funds provide a diversity of funding opportunities for projects in response to emerging local or national issues, as well as reliable resources that enable the continuity of long-term research ventures, such as developing new plant varieties. Cornell's agricultural experiment stations are among the very few nationwide that use the majority of awarded Federal Capacity Funds to support faculty initiated research projects. Research funds are allocated to selected projects after a thorough and competitive process that includes reviews from stakeholders, faculty, directors, and finally NIFA. Some projects are jointly funded by the experiment stations and CCE. Because projects are mission driven they must address issues that stakeholders deem important; however, not all projects strive to provide near-term solutions. Funded projects often provide a basis for investigators to apply for larger competitive grants. Indeed, Cornell faculty leverage capacity grant funding to grants from foundations, corporations, NIH, NSF and USDA at a ratio of 1:9. Federal capacity grant funds from NIFA provide a critical funding source that tackles critical problems across a range of disciplines and allows Cornell to leverage additional funding.

A large number of formal outreach programs exist specifically within CALS and in partnership with CHE. Specific examples of these programs are described below:

The Cornell University High Pressure Processing (HPP) Validation Center provides an essential need for validating HPP treatments to ensure that the applied process can effectively kill pertinent pathogenic microorganisms in a variety of treated foods. Before any HPP treated product can be placed on the market, and in order to obtain regulatory approval from either the Food and Drug Administration (FDA) or the United States Department of Agriculture (USDA), each food product has to undergo such a validation process, to confirm that the HPP processing achieves the same level of pathogen inactivation per regulatory requirements. This project was funded partially with a grant from the NYS Legislature and partially by funding from industry stakeholders. The 3-year forecast has been developed with the goal of the center being self-sufficient, while running under the Cornell University Cost Recovery model. Since the opening on February 1, 2017, 65 HPP validations and shelf life testing studies have been performed, with an additional 20 products scheduled to be performed before July 1. The predicted industry demands exceed the forecasted need outlined in the business plan.

The Cornell tax schools are taught by small business and farm tax experts within the Dyson School. Qualifying program attendees are eligible for NYS Continuing Educational Credits (CPE). In addition to conducting research, Tax Schools educational programs are targeted toward

tax preparers, consultants, and attorneys who work with and prepare tax returns for individuals, small businesses, and farmers. Tax management educational tools are provided as part of the conventional extension to farm management educators who work with farmers directly. Tax practitioners are charged a fee that covers the direct cost of the program as well as the cost of maintaining the educational infrastructure that supports the program.

PRO-DAIRY is CALS' flagship statewide extension and outreach program focused on improving economic viability, environmental stewardship, animal well-being, and the professional skills of New York dairy farms and the allied industry professionals that work with them. Funded by annual contract for nearly 30 years from the NYS Department of Agriculture and Markets, PRO-DAIRY specialists provide educational programs and conduct applied, industry-based research on farm business management; nutrient management and crop production; on-farm renewable energy and manure management; cow health and well-being. Professional development opportunities for dairy farm owners and managers, employees, high-school aged youth, and allied industry professionals (including agribusiness and CCE educators), are also provided. Core funding for PRO-DAIRY specialist salaries is mostly provided from the NYS contract and enables stakeholders to access specialists without specific fees; however, registration fees are charged to participants in conferences and other programs coordinated and conducted by the PRO-DAIRY program.

Insectapalooza is an annual, one-day insect fair hosted at Cornell University. Now in its 14th year, Insectapalooza engages the public through an interactive, hands-on experiences that feature hundreds of live insects, spiders, and other arthropods. Participants of all ages are introduced to the wonders of insects as well as the value of research being conducted at the college.

The Forestry and maple programs housed in the Department of Natural Resources (DNR) and CCE serve several audiences including landowners, producers, educators, agency staff, volunteers, and those who provide technical assistance. Maple programs funded predominately by external funds are guided by advisory committees, and ultimately seek to ensure the sustainable and wise use of natural resources, and the safety and profitability of producers. The average annual income for DNR-CCE forestry and maple educational materials and workshops is about \$20,000 per year. About \$10,000 per year is also received in annual gifts in support of forestry and maple programming. Timber sales, along with syrup and maple products, generates an additional \$200,000 per year to support both applied research and extension activities.

The DNR-CCE Wildlife Damage Management and Conservation Education Programs serve several audiences including landowners, agricultural producers, educators, agency staff, wildlife control professionals, community leaders, and volunteers. Those who value wildlife for many positive recreational benefits, and are interested in promoting habitat conservation are supported as are stakeholders who expect assistance with negative impacts associated with overabundant species. Wildlife-related workshops and publications generate about \$20,000 per

year in revenue for general DNR-CCE programming. In addition, the National Wildlife Control Training Program (NWCTP) sold approximately 360 books and 145 on-line courses during the past year, with gross revenues of approximately \$42,000. The NWCTP is a certificate course for professional Wildlife Control Operators, and passing the course is currently required for licensing in four states (NY, OK, DE, and VA). Custom books and courses for use in NC and WA are in development, and those states are expected to require the course for licensing within the next two months. Negotiations are currently underway with PA to develop another custom NWCTP online course and book for their state.

The Cornell Small Farms Program (CSFP) fosters programs that support and encourage the sustainability of diverse, thriving small farms in which vibrant rural and urban farms build human capacity, revitalize communities, supply regional food systems, and foster ecological resilience in a changing world. The Program consists of eight on-campus staff working closely with over 30 CCE educators to create responsive programs that serve small farms on topics of marketing, business development, crop and livestock production, soil health, and agroforestry. These project teams offer curriculum and trainings to farmers of all enterprises and experience levels including a focus on underserved audiences. Recent outreach efforts have targeted veterans, women, beginning farmers and urban farmers.

The New York State Wine Analytical Lab (WAL) is a service facility that provides analysis of beverage alcohol products for troubleshooting, quality assurance and/or regulatory compliance purposes. The services are available to any winery, but emphasis is placed on the wine and cider industries in NYS. The WAL has a set fee schedule and New York producers are given a discount through a partnership with the New York Wine & Grape Foundation. Through these fees combined with subsidies provided by Cornell, the WAL aims to recover all costs associated with running the lab. The lab additionally serves as an extension vehicle for the enology program. Analytical requests and patterns observed in lab samples help faculty identify "problem areas" related to especially challenging growing seasons or weaknesses in available techniques and technology.

NY Sea Grant (NYSG) serves coastal communities, businesses, teachers, and residents from the Great Lakes and Rivers to the Hudson River and Estuary to the Long Island Sound and the Atlantic Ocean. NYSG conducts outreach, research, extension and education in four focus areas: Healthy Coastal Ecosystems (addressing topics such as aquatic invasive species, emerging contaminants, harmful algal blooms); Sustainable Fisheries and Seafood (addressing fisheries management, seafood safety and technology, seafood marketing, and aquaculture), Resilient Coastal Communities and Economies (addressing coastal processes and hazards, tourism and recreation businesses) as well as Environmental Literacy and Workforce Development (funding graduate student research, teacher training on coastal resources issues, and adult informal education on coastal topics). A cooperative program of SUNY and Cornell, NYSG receives its federal funding from NOAA as well as state funding as a SUNY-wide institute. In addition, the

NYS Extension program receives funding for extension and outreach work from the US EPA, USFWS, NOAA, USGS, Brooklyn College (Science and Resilience Institute at Jamaica Bay) as well as the NYS Department of Environmental Conservation.

2.2.3 CHE Organization and Infrastructure

The extension and outreach activities of CHE take place primarily through the five units listed below. Depending on how each unit is situated, faculty carrying out extension programming report to a unit director, executive director, division director or department chair, all of whom report to the dean of CHE singularly, or jointly (as in the case of the Division of Nutritional Sciences and the Institute for Healthy Futures, where reports are made to the deans of CHE, CALS and the Hotel School, respectively).

The Bronfenbrenner Center for Translational Research (BCTR)'s mission is to expand, strengthen, and speed the connection between research, policy and practice to enhance human development and well-being. The BCTR is the key conduit for the extension work of CHE, housing the previously described 4-H program and CUCE-NYC. For over 90 years, the NYS 4-H Office has hosted the annual Career Explorations Conference on the Cornell campus. With the recent launch of PRDYE (Program for Research on Youth Development and Engagement), led by Human Development faculty members, 4-H is developing new linkages between campus researchers and the 4-H community of educators and volunteers who together reach nearly 190,000 youth, ages 5-19. A key goal of the center is to promote and engage faculty in translational research. It does so by supporting a Faculty Fellows Program; a series of translational research trainings and support services; and conferences and presentations that bring together community members and researchers to discuss topics related to human health and well-being.

The Division of Nutritional Sciences (DNS) is engaged in a range of extension and outreach programs, integrated with research and engaging students. Domestically, this work targets low-income populations, with direct nutrition education provided to adults and children, focusing on healthy eating, physical activity, and food security as well as on changing policies, systems, and environments to make healthy food and activity choices easier. International work focuses on low-income countries, where outreach and research includes epidemiology, food and nutrition policy, program development and management, causes and consequences of malnutrition, psychosocial factors related to food choice, and interaction between environments. Results of integrated research and extension programs inform organized, non-formal education of professionals in evidence-based practice (e.g. through Cornell NutritionWorks) that has reached over 80,000 practitioners globally since 2012, as well as the World Health Organization Collaborating Center. In the Global and Public Health Sciences Major and Global Health Minor, all students are required to engage in an approved and supervised experiential learning opportunity. Students have the unique opportunity to connect theory and practice, to learn in new

contexts, to interact with others from different academic and cultural backgrounds, and to practice using knowledge and skills in an applied public health setting.

The **DNS** also houses **Food and Nutrition Education in Communities (FNEC)**, which provides leadership for integrated research and extension/outreach that focuses on nutrition education for low-income populations, particularly families and youth. This includes the Expanded Food and Nutrition Education Program (EFNEP) and the Supplemental Nutrition Assistance Program – Education. Together these programs, delivered through CCE, reach over 200,000 adults and about 175,000 youth annually.

The Cornell Institute for Public Affairs (CIPA) is an MPA program that educates the policy leaders of tomorrow. A key component of the CIPA curriculum is public engagement in communities, and through student coursework and internships, provides pro bono consulting in local communities. For example, through the CIPA Public Service Exchange, MPA students engage in service-learning opportunities with nonprofit and government agencies.

The Cornell Institute for Fashion and Fiber Innovation (CIFFI) fosters collaborations between faculty in the Department of Fiber Science and Apparel Design, students, and industry partners in the area of fashion design, marketing, fiber science, and materials testing. By working together, faculty, students and industry partners translate innovative research into implementable technologies and products, such as performance apparel, smart clothing and sustainable fashion.

The Cornell Institute for Healthy Futures is the first academic center in the U.S. to combine hospitality, environmental design, and health policy and management into a program that seeks to improve service in the healthcare, wellness and senior living industries. The institute engages with partners in the healthcare and hospitality industries, bringing them together with faculty and students in CHE and in the School of Hotel Administration to address emerging issues through roundtables, conferences and practicum projects.

2.2.4 CVM Organization and Infrastructure

With a focus on advancing medical care and diagnosis of disease in animals, CVM is composed of 7 teaching hospitals, 5 academic departments, 4 research centers, and 43 clinical specialties. It is through the hospitals, clinics and service laboratories that CVM most directly delivers outreach and extension. The directors of these units report to the dean.

The **AHDC Animal Health Diagnostic Center (AHDC)** provides diagnostic testing and consultations for domestic species and wildlife in collaboration with NYS in partnership with NYS Department Agriculture and Markets. AHDC Veterinary Support Services is a section within the AHDC that provides consultations with veterinary practitioners, and assistance is provided to producers in the state and region in test selection and testing strategies, interpretation of results, disease prevention, surveillance, and control programs. Quality Milk Production Services serves the dairy industry of NYS by promoting the production of high quality milk

through the control of mastitis, and the avoidance of antibiotic residues in milk through field and laboratory diagnostic evaluations and recommendations. With a total staff of 35, over 170,000 cultures and other tests were performed during the past year, along with over 2,600 farm visits and 7,500 telephone consultations. Four regional laboratories (in Ithaca, Cobleskill, Canton, and Warsaw) serve as an extension of the AHDC, assisting in performing field and laboratory diagnostic evaluations of dairy problems, and promoting the control of other diseases affecting the agricultural industries in NYS.

Within the **Cornell University Hospital for Animals**, the **Companion Animal Hospital (CAH)** provides health and medical care for more than 18,500 dogs, cats, birds and other small mammals each year. Routine health care, including physical examinations, vaccinations, and treatment of minor illnesses is provided through a Community Practice Service. Veterinary students in the third and fourth year of their DVM program, assisted by veterinary technicians, examine and treat companion animals during scheduled appointments. Student clinicians are supervised by faculty veterinarians who consult and provide medical assistance for each case as needed. Many patients at the CAH are referred by their veterinarians for evaluation by faculty specialists for complicated medical or surgical problems.

The **Equine Hospital** offers patient care for horses and the **Nemo Farm Animal Hospital** offers patient care for cattle, goats, sheep and pigs and other farm animals. Board-certified specialists, dedicated residents, licensed veterinarian technicians, and supervised students work together to provide the best available emergency care, diagnostic procedures, treatment, and hospitalization for patients. The hospital is open around-the-clock for emergency and critical care cases, including neonatal intensive care and high-risk pregnancies.

The **Ambulatory and Production Medicine Service** provides routine and emergency veterinary service on farms within 25 to 30 miles of Ithaca. This includes care of individual cattle, horses, small ruminants, camelids, and swine as well as implementation of production medicine programs in local herds.

The **Janet L. Swanson Wildlife Health Center** provides comprehensive medical and surgical care to sick, injured or otherwise impaired native wild animals and works closely with wildlife rehabilitators and the New York Department of Environmental Conservation. The staff includes veterinarians, veterinary technicians, and rehabilitators who treat native wildlife brought in by the public, with the goal of releasing them into their original habitats.

2.2.5 ILR Organization and Infrastructure

ILR's concentration on the world of work offers broad research, engagement and programmatic opportunities for driving positive change. ILR focuses its extension activities on a variety of themes related to work and employment through twelve distinct centers, institutes, and outreach programs that report to the Associate Dean for Outreach and Sponsored Research. Nine of ILR's twelve extension units have a senior tenured faculty member serving as director.

Some 40 extension faculty deliver the bulk of outreach services, supported by another 50 professional staff. Roughly half of all ILR's outreach employees (extension faculty and staff) are based in ILR's offices in midtown Manhattan, representing seven of the institutes and programs. Thousands of professionals attend training, seminars and conferences, as well as alumni events, at the ILR-NYC Conference Center. While the vast majority of the remaining outreach employees are located in Ithaca, small offices operate in Buffalo and Rochester, and single, remote employees are based in Albany, St. Louis and Boston, among other locations.

The centers, institutes and programs under the ILR outreach umbrella include:

Center for Advanced Human Resource Studies (CAHRS): The world's leading human resource partnership between industry and academia, and a unique network of corporate partners from the world's top companies. ILR's HR faculty work directly with partners and share new research and applications to create excellence in human resources.

Cornell Higher Education Research Institute (CHERI): Facilitates interdisciplinary research on higher education, working with faculty and administrators from Cornell colleges and around the world. The institute's current research interests include the financial challenges facing higher education and reducing inequality in access to higher education.

ILR Executive Education/Human Capital Development (ILR Exec Ed/HCD): Today's organizations require every workplace component driving strategic impact; effective people systems, processes, and risk management; and compliant yet innovative policies. ILR Executive Education is underpinned by cross-disciplinary research, backed by practice-based consulting, and informed by continuous interaction with senior executives. Grounded in this multidimensional mindset, its content is designed to equip professionals to impact current business challenges and maximize future organizational opportunities. ILR's HCD workshops, certificates and on-site education programs work at the intersection of social science and business practice. Through actionable learning, participants gain practical knowledge that can be applied to effectively manage workplace challenges and improve individual and organizational performance.

Institute for Compensation Studies (ICS): Focused on research, teaching and communicating about monetary and non-monetary rewards from work, ICS provides publications, programs and expert insight to inform and advance practitioner decision making and promote public discourse on income- and compensation-related issues.

Institute for Workplace Studies (IWS): IWS grew out of a deep commitment to strengthen the presence of ILR in the metropolitan New York area. Located in ILR's Midtown Manhattan center, the institute serves as an intellectual gathering place with a focus on issues affecting today's world of work. IWS hosts the Future of Work Series, a forum for leading thinkers to

communicate with the public on the Future of Work and the Gig Economy. It also houses ILR's Master of Professional Studies (MPS) program for working professionals.

Labor Dynamics Institute (LDI): Creates and makes accessible data on the dynamics of labor markets for research networks and statistical agencies. LDI's work informs policymakers, researchers and educators, and includes partnerships with key organizations including the U.S. Census Bureau and the National Science Foundation.

Labor and Employment Law (LEL): Brings together social scientists and attorneys to inform each other's work with the goal of addressing contemporary labor and employment law and workplace issues to influence litigation and public policy decisions. Partnering with law firms representing plaintiffs, management and unions, government agencies, and academics from a variety of disciplines, LEL is able to provide unique offerings that analyze issues from multiple perspectives to increase awareness and expand the discussion.

Martin and Laurie Scheinman Institute on Conflict Resolution (Scheinman): Provides undergraduate and graduate education and interdisciplinary research focused on conflict resolution in the workplace. The institute offers training programs on dispute resolution for practitioners, advocates and professional neutrals, nationwide. In addition, Scheinman has begun to train matriculating students to mediate a select number and category of campus disputes through a formal student mediation program at the request of the Cornell University Office of Judicial Administration.

Worker Institute at Cornell (WI): Provides research, education and a forum for public discourse on worker rights and collective representation. The institute leads initiatives focusing on strategic leadership for international collective action; equity at work; labor, the environment and sustainable development; and precarious work. It promotes innovative thinking to inform policy. The Institute offers a statewide one-year certificate program jointly sponsored by the NYS AFL-CIO, the national AFL-CIO, and ILR. Instruction combines seminars, fieldwork, and mentoring. Students are nominated by their union to enroll.

The Smithers Institute (Smithers): Dedicated to advancing knowledge of alcohol, drug and health issues in the workplace, and advocating that the workplace is a critical arena for prevention, intervention and treatment of alcohol-related problems.

K. Lisa Yang and Hock E. Tan Institute on Employment and Disability (YTI): Advances policies and practices to enhance opportunities for people with disabilities and ensure their full inclusion in the workplace and communities. YTI is a source of research and information on employment and disability for employers, lawmakers, federal and state agencies, and service providers.

Cornell in Buffalo: ILR's Worker Institute provides educational and consulting activities, including workforce development training for disadvantaged workers, programs to promote

workplace safety and health, environmental sustainability, and labor-management cooperation. ILR's occupational safety and health program also provides technical expertise to the Western New York Council on Occupational Safety and Health and Erie County Medical Center's Center for Occupational and Environmental Medicine. ILR's High Road Fellowships offer Cornell students the chance to have engaged learning experience while contributing directly to Buffalo's revival. Since 2009, over 100 students have spent the summer working on grassroots economic development projects with more than 40 community organizations affiliated with the Partnership for the Public Good (PPG), a nonprofit community-based think tank providing applied research, policy development, advocacy, and communications support to over 200 community partners. Cornell Cooperative Extension of Erie County (CCE Erie) shares office space in Cornell in Buffalo and provides educational programs in agriculture, 4-H youth development, nutrition, and consumer horticulture. Over 20 CCE staff work throughout the county on projects as diverse as an agricultural workforce development project in partnership with Journey's End Refugee Services, an urban career and civic engagement program with at-risk youth, gardening workshops for county residents, a farm-to-school project in partnership with the Buffalo Public School District and assisting with Buffalo's Healthy Corner Store Initiative. Located in the Cornell in Buffalo offices, and hosted as a collaborative effort with Partnership for the Public Good, the Buffalo Commons supports a digital library of Buffalo-based policy and research, a research exchange, and promotion of locally-based engagement opportunities.

2.3 STAFFING, EXPENDITURES, AND REVENUE

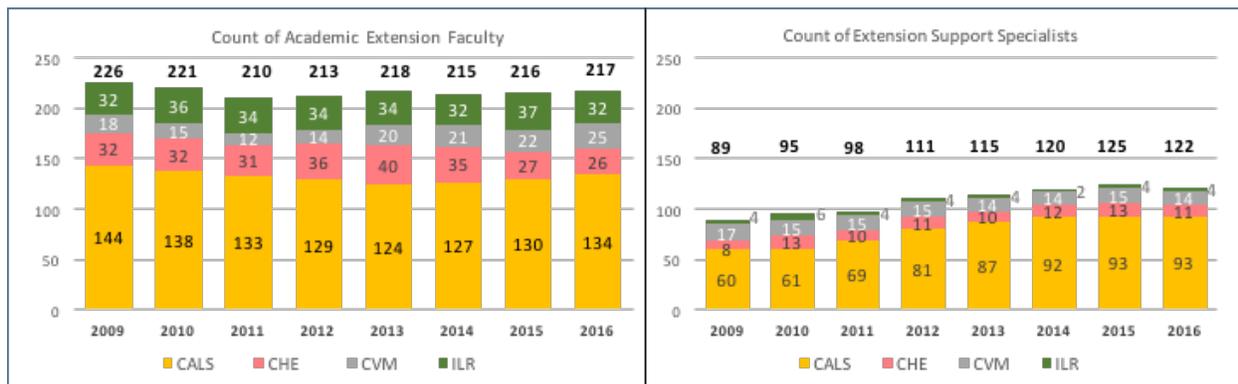
2.3.1 Staffing

Historically, it was common for some tenure track faculty members in the contract colleges to have a formal effort commitment in extension and outreach. Over time, effort assignments in the tenure track have evolved and we found that university systems may not accurately capture faculty effort distribution. Thus, we are not able to report effort by tenure track faculty in extension and outreach.

Responsibility for extension is clearly attached to those holding titles of Extension Associate or Senior Extension Associate (referenced here as extension faculty). Extension Support Specialist is a staff title that reflects a dedicated effort to support of extension and outreach. Although the specific activity of extension faculty varies across academic units, their appointment is one measure of the activity and commitment for a college or school.

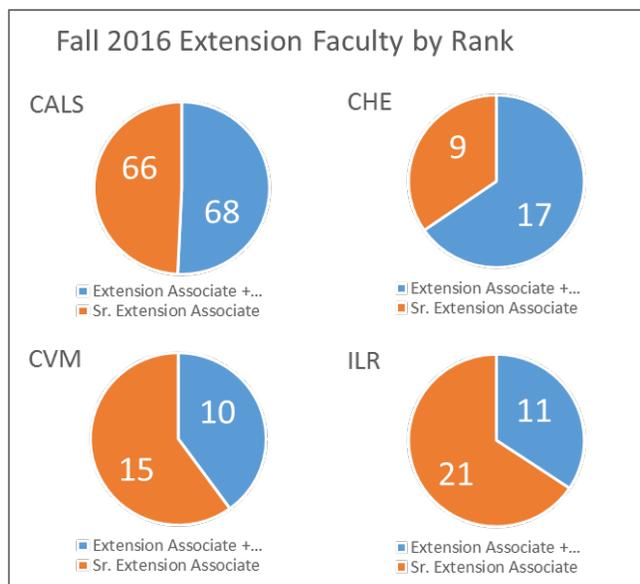
Overall, the head count of full-time extension faculty has been fairly steady over the past four years, in the range of 215 – 218 and rebounding from a low of 210 in 2011 (See Figure 2). (Note that these are lower bound estimates, as some extension focused individuals may hold research or other titles.)

Figure 2: Extension faculty and staff headcounts over time.



The count of staff appointed as extension support specialists appears to have stabilized after five years of growth between 2009 and 2013. Note that these counts do not include staff supporting extension or outreach activities who may be classified as student services professionals or administrative support and thus are lower bound figures. In 2016, the ratio of extension to senior extension faculty varied among the four contract colleges (See Figure 3). We did not determine whether this reflects differences in stage of career demographics (progression in title) or strategic investment in senior versus junior titles.

Figure 3: Ratio of extension to senior extension faculty



In 2016, **faculty in extension titles** across the four colleges served as PI or Co-PI on federal or state (sponsored or appropriated), corporate or foundation grants and contracts that accounted for \$12.2M in expenditures (Table 1).

Table 1: Sponsored and appropriated expenditures on projects for which the PI or Co-PI holds the title of Extension Associate or Senior Extension Associate.

College of Agriculture and Life Sciences	\$5,875,552
Animal Science	\$96,166
Biological & Environmental Engineering	\$201,243
Cooperative Extension - Integrated Pest Mgmt	\$237,776
Cornell Cooperative Extension	\$539,878
Development Sociology	\$140,313
Entomology (Ithaca)	\$380,239
Hudson Valley Laboratory	\$24,682
International Programs	\$105,277
Laboratory of Ornithology - Programs	\$1,088,147
Natural Resources	\$528,008
School of Integrative Plant Science	\$2,477,443
Sea Grant/lead NY	\$56,380
College of Business	\$26,211
Applied Economics and Management - Dyson School	\$26,211
College of Human Ecology	\$1,582,446
BCTR - Family Life Development Center	\$1,458,510
CUCE NYC - CHE	\$3,707
Policy Analysis & Mgmt	\$120,229
College of Veterinary Medicine	\$268,029
Population Medicine and Diagnostic Sciences	\$268,029
Industrial & Labor Relations	\$4,540,084
Employment & Disability Institute	\$4,510,430
Institute for Compensation Studies	\$3,406
Scheinman Institute	\$26,248
Grand Total	\$12,292,321

2.3.2 Expenditures

Total expenditures for extension and outreach across the four contract colleges were approximately, \$157M in FY15 and \$161M in FY16 (See Table 2).⁴

Expressed as a percentage of each college budget, expenditures range from approximately 11 to 27% in each year.

⁴ See Appendix A for assumptions and considerations underlying expenditure calculations

Table 2: Total contract college expenditures for extension and outreach (FY15 and FY16)

FY15 Actuals - Contract College Public Service				
	Public Service (All 44XX)	Non-Public Service (Not 44XX)	Total	% Public Service
Agriculture & Life Sciences	\$60,826,534	\$500,200,066	\$561,026,600	10.84%
Human Ecology	\$18,355,770	\$113,781,481	\$132,137,251	13.89%
Industrial & Labor Relations	\$30,235,934	\$82,288,365	\$112,524,299	26.87%
Veterinary Medicine	\$47,395,482	\$152,332,350	\$199,727,832	23.73%
Total	\$156,813,720	\$848,602,262	\$1,005,415,982	15.60%
FY16 Actuals - Contract College Public Service				
	Public Service (All 44XX)	Non-Public Service (Not 44XX)	Total	% Public Service
Agriculture & Life Sciences	\$ 61,055,196	\$ 500,074,446	\$ 561,129,642	10.88%
Human Ecology	\$ 20,137,757	\$ 112,411,360	\$ 132,549,117	15.19%
Industrial & Labor Relations	\$ 31,822,526	\$ 86,743,939	\$ 118,566,465	26.84%
Veterinary Medicine	\$ 47,916,840	\$ 159,290,252	\$ 207,207,092	23.13%
Total	\$ 160,932,319	\$ 858,519,997	\$ 1,019,452,316	15.79%

2.3.3 Revenues

Historically, extension programs received direct support from state and federal governments. Today, extension and outreach are supported by a diversified portfolio of revenues (Figures 4 and 5) with variation across the units that is not surprising given the wide-ranging variation in how extension is structured across the four contract colleges.

Figure 4: FY15 Revenue Sources

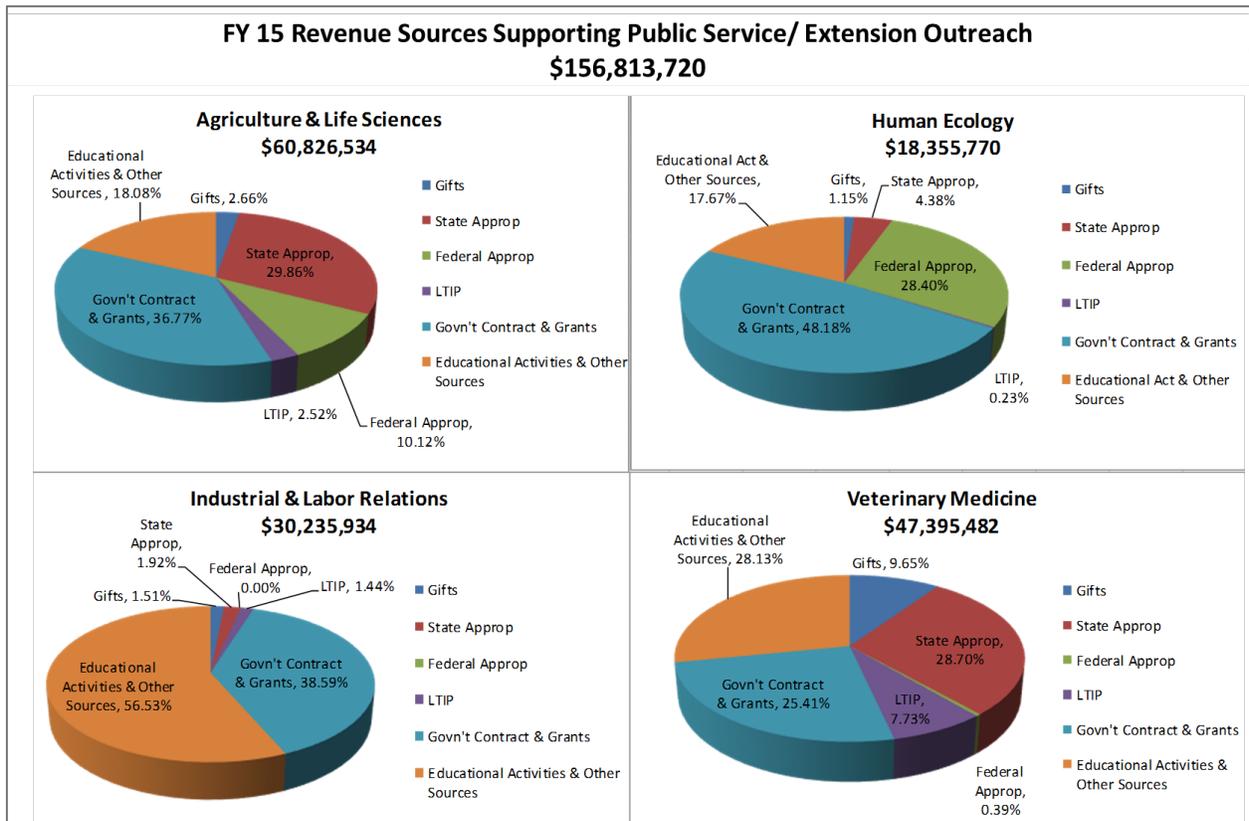
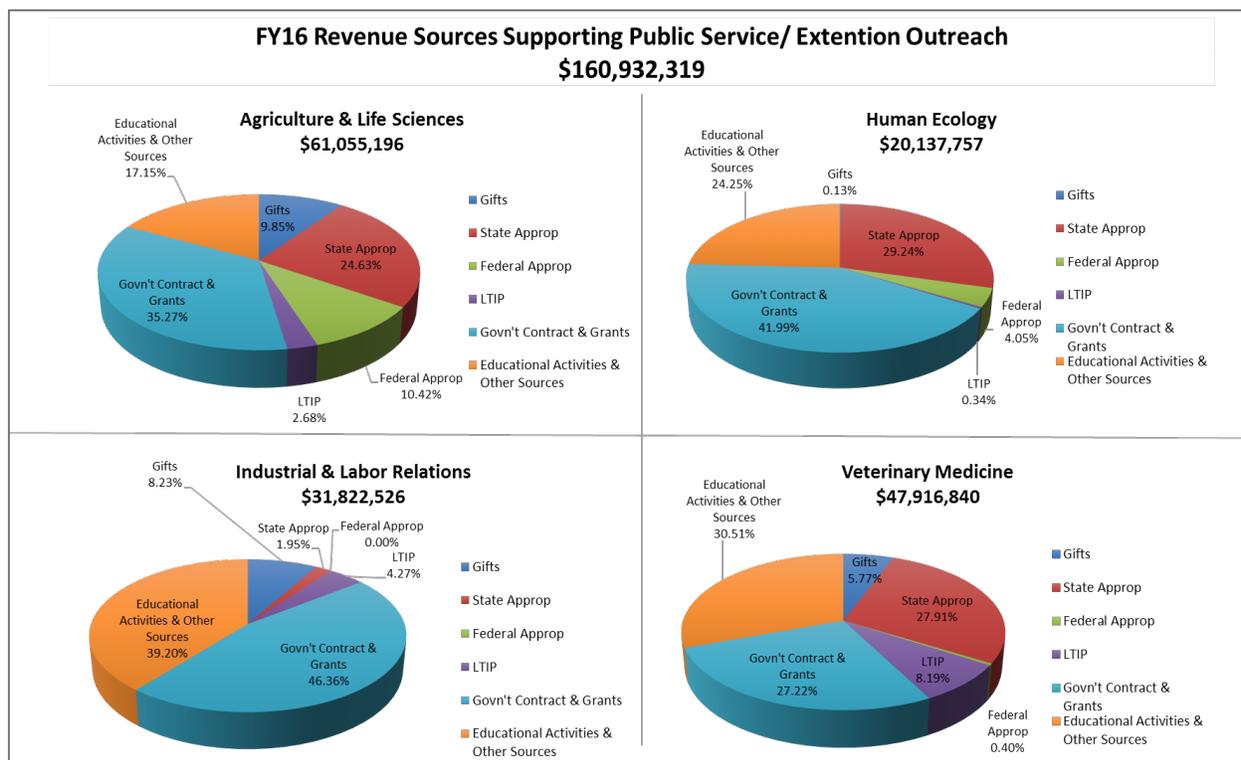


Figure 5: FY16 Revenue Sources



Fee for service (included in Educational Activities and other) and grants/contracts are critical components of revenues. In the case of ILR, these sources account for approximately 85%-95% of revenue. In the other contract colleges (CALs, CHE and CVM), state and federal appropriations combined contribute approximately one-third of all revenue. The variation in revenue sources is consistent with the variation in programs and approaches to extension and outreach across the four units. It is noteworthy that overall, gifts account for less than 10% of revenue in any unit, suggesting alumni and other giving has potential for growth.

2.4 CORNELL COOPERATIVE EXTENSION

While CCE may be the most recognized provider of extension services to the general public in NYS, it is both independent of and embedded in Cornell’s contract college structure. CCE is administered by Cornell University, but most of its funding is pass-through federal and state funds, matched by county-level funding to support operations in the county. Extension offices county by county hire and manage a large share of individual CCE staff, while the authority to support and facilitate the work of CCE rests with Cornell.

A 2014 report of Cornell University’s economic impact in the State of New York (Economic Impact on New York State, 2014) included detailed analysis of the funding and economic impact

of CCE. As described in the report: CCE programs are funded by a combination of federal grants, state funding, county budget allocations, outside grants, and program fees. County associations use these resources to offer activities that generate additional support from other community organizations, private sources, and branches of government. CCE spending across all categories totaled \$94 million in FY2013.

According to this study, CCE employed approximately 2,500 full- and part-time workers and had a total economic impact of \$450 million in the state. Approximately 1.4 million NYS residents per year participate in CCE programs, including those focused on youth and family development in New York City and Long Island.

A key role of CCE staff members is to mobilize volunteers who focus on areas of need that might go unmet if the host community had to pay for the services. Volunteer hours were largely dedicated to youth programs (846,438); food and nutrition programs are second (with 148,017 recorded volunteer hours). The number of volunteer hours for all CCE programs in FY2013 was 1.1 million. CCE uses an estimate of \$19.50 per hour for most volunteers. By that measure, CCE volunteers contributed \$21.5 million worth of services in FY2013.

3. EXTENSION AND OUTREACH ACTIVITIES AND SERVICES

The Extension Task Force considered four specific categories of extension, outreach and engagement within the contract colleges. These were (applied) research; (non-degree) education; public discourse and technical assistance; and (matriculating) student involvement. An overview of how the respective contract colleges deliver within each of these four channels, including any metrics that are applied, as well as the populations targeted by the activity, is addressed in turn.

3.1 RESEARCH IN RELATION TO EXTENSION AND OUTREACH

The purpose of research related to extension and outreach activities across the four contract colleges is to develop science-based solutions for problems facing our stakeholders and to break down traditional boundaries between basic research, intervention research and extension/outreach. In doing so, Cornell accelerates the application of research findings in support of evidence based decision-making and action that will improve health and well-being; increase efficiencies in the production of food, public health, and animal health and well-being; and create more effective and successful employer-employee relations and workplaces to improve working lives and living standards.

Extension, outreach and engagement research across all colleges is designed to bridge academics and practice, rapidly disseminating our science-based solutions to stakeholders and gathering crucial information from the field. The focus is increasing the visibility of the outreach and public engagement of the colleges, enhancing research and engagement opportunities for students, building research-community partnerships, and bringing research into the public domain by making it more accessible to people in NYS and the world. With a broad base of

basic scientists, social scientists, and clinicians, extension and outreach research activities in the contract colleges are diverse, ranging from bench-top to practice, in clinical settings and in the field (literally and figuratively). Sources of data include clinical and laboratory experimental data, public-access and restricted-access governmental databases, and unique organizational-specific data made possible through relationships of trust built across the spectrum of organizations in the for-profit, government and nonprofit sectors. Like “strictly” academic research, extension and outreach research is grant-funded, resourced through alumni giving, and subsidized with programmatic revenue from fee-for-service activities.

Value is added to these research activities by putting findings to work to serve the public good, nationally and internationally. Further benefit comes from involving students (undergraduate, graduate, and professional) in the research process so they can understand how new knowledge is generated and disseminated. Research activities in Cornell’s contract colleges come with a responsibility to have real time problem-solving impact.

The target populations for extension-related research in the contract colleges are as diverse as the disciplines represented therein. However, these populations are similar in that they represent real world stakeholders who serve as information multipliers and research partners. Target populations include local governments, small and large private business enterprises, agricultural managers and related agribusiness, non-profit organizations that interact with families, teens and children, decision-makers determining work-place rules, media, and animal owners. Educators, including CCE educators, teaching academics, and technical service providers are also important target populations.

Metrics that describe the scope and impact of research include: surveys to evaluate change in practices or knowledge as a result of extension/applied research; enumeration of grants and contracts with an applied component; counts of the proportion of faculty and trainees involved in extension/applied research; and assessments of the adoption of new practices/knowledge among stakeholders. Actual “impact” metrics are less common than “input” metrics in measuring extension across the contract colleges. Even input metrics are challenging to collect and not a routine part of the existing information and data collection infrastructure at Cornell.

Nevertheless, there are hints that extension and outreach activities are pervasive. For example, a 2015 survey in the CVM revealed that 56% of faculty were engaged in applied, translational or community-based research.

3.1.1 Research Overviews by College

Because there is no central repository where extension research activities are reported and the colleges vary in the extent to which they have easily accessed compilations, we offer below an abbreviated summary of some major research activities that are integral to extension and outreach within each of the contract colleges. Our intent is not to be comprehensive, but instead to offer an overview of core themes and highlight some salient examples.

3.1.1.1 CALS Research

Outreach and engagement research is very broad in CALS ranging from work to increase plant health (reducing insect, pathogen and weed pressure) for growers, to understanding how people interact with our natural environment, to enabling the development of new food products, to ensuring quality milk from healthy dairy cattle through the development of novel detection tools for unwanted microbes. Research is also being conducted with stakeholders to reduce postharvest food waste, study watersheds, increase community and economic vitality, and enhance sustainability. Within the state, science-based solutions can be rapidly disseminated through CCE to stakeholders from NYC to Lake Erie. Internationally-focused units such as the Cornell International Institute for Food, Agriculture and Development, work to disseminate best practices across the globe.

3.1.1.2 CHE Research

CHE extension and outreach activities directly connect with research in the academic departments of the college through the BCTR, the extensive outreach and extension activities of the DNS, CIFFI, CIPA, and CIHF. CHE also engages through research centers and institutes such as the Cornell Population Center. In addition, in Nutritional Sciences most faculty in community (n=5 of 6) and all in international nutrition (n=9) conduct engaged research that has an extension/outreach component focused on disenfranchised populations, both domestically and in the developing world.

3.1.1.3 CVM Research

Research at CVM advances public health and veterinary medicine at the interface of discovery and application. College research at the molecular, cellular, organismal, and population levels informs the practice of medicine, public health, and policy. Faculty in all five academic departments are active in the research mission of the college, as well as in educating the next generation of research scientists. Some of those departments focus more on basic discovery while much of the activity in Clinical Sciences and PMDS is applied and can be translated to end-users and stakeholders readily in an engaged fashion. An example of this, in fact partially supported by Engaged Cornell, is a project working with veterinarians and decision makers on dairy farms to make science based decisions for prudent use of antibiotics such that they remain effective for treatment of animals and people when they are necessary. CVM also is home to several interdisciplinary centers, institutes, laboratories, and programs that support faculty research and enhance veterinary undergraduate, graduate, and professional education. Additionally, CVM faculty engage in cross-campus, national and international collaborations extending beyond veterinary science and into public and human health.

The CVM Baker Institute for Animal Health conducts infectious disease research, specializing in basic science and translational research in companion animal health, Other examples of CVM-centered research initiatives include the Cornell Dairy Center for Excellence, the Feline Health Center, the Long Island Duck Research Laboratory, the Comparative Cancer Program, the

Cornell Veterinary Biobank, and the Aquatic Animal Health Program. CVM scientists also engage in many university-level research collaborations, including interdisciplinary work by the Cornell Center for Wildlife Conservation, the Cornell Center for Comparative and Population Genomics, and the Cornell Stem Cell program.

CVM also has an active clinical trials program engaging clinicians, clients, and patients in cutting-edge research and innovative treatment modalities.

3.1.1.4 ILR Research

In ILR, extension, outreach and engagement research serves as a bridge between academics and practice, while focusing on the world of work. It is cross-disciplinary applied social science research, deploying quantitative and qualitative techniques. Research under the ILR extension and outreach umbrella focuses on contemporary challenges for workers and the organizations who use their talents and services, as well as larger issues of income distribution and employment systems, laws and practices. Specific areas of research include: workplace conflict resolution, arbitration and mediation; dynamics of the labor market; employment barriers for those with criminal records; employee and executive pay; employment opportunities for people with disabilities; challenges for vulnerable/precarious workers; alcoholism and work; global supply chains; human resource strategy; work-life balance and wellness. DigitalCommons@ILR is an open-access electronic database of scholarship of ILR's tenure track and extension faculty and researchers.

3.2 ORGANIZED EDUCATIONAL PROGRAMS IN EXTENSION AND OUTREACH

The four contract colleges collaborate with community members, policymakers and industry partners to extend and generate current knowledge, improve the practice of professionals, and generate practical, evidence-based approaches to issues and decision-making. The four contract colleges do this through organized education and training, certificate programs, continuing education opportunities, and direct collaboration with stakeholders.

Described here are non-degree programs, including certificates, certifications or continuing certification credit offerings. Non-degree educational offerings provide public service based on science, building strong educational relationships with key stakeholders outside of Cornell.

Academics provide up-to-date knowledge and skills for professionals, increasing their ability to positively impact the populations targeted by their extension/outreach programs regionally, domestically and internationally. Practitioners learn from both academics and each other how practices can be improved. Academics and policy makers in turn, learn from the front-line experiences of these practitioner-students and peer participants how research and policy can drive positive change, further define new questions and challenges, and collaborate with stakeholders in addressing these challenges. Divergent groups come together to discuss their

differences and commonalities in addressing challenges they face. As a result, academics, practitioners and decision-makers engage on topics critical to world-wide sustainability.

Organized outreach programs also extend the reach, impact, and visibility of Cornell, domestically and abroad. Program participants develop deep attachment (not unlike degree-alumni) and take great pride in their certificates and involvement with Cornell. Finally, some of these programs provide an important source of revenue that cross-funds other activities within the academic and outreach and extension units

The contract colleges report annually to SUNY on non-credit instructional activities. These activities are largely in extension. The number of contact hours in 2014-2015, by college, are shown in Table 3. Again, these are likely to be lower bound estimates due to variations in approaches to reporting across units.

Table 3: Contract College Non-Credit Instructional Activities, 2014-2015

College or Unit	Contact hours: vocational and professional training	Contact hours: Other, includes personal enrichment and community service	Total	Of these contact hours: business and industry training
CALS	124,694	41,564	166,258	141,318
CHE	465	10,907	11,372	1,017
CVM	174,933	0	174,933	0
ILR	59,763	0	59,763	46,186
CCE	0	1,279,826	3,430,274	1,233,892

The proportion of contact hours devoted to business and industry training versus community service or personal enrichment varies greatly across the colleges. The most contact hours by far are delivered by CCE – well over 3 million hours, more than 8 times the cumulative total reported by the four colleges combined. That said, it is noteworthy that all of the contract colleges provide vocational and professional training beyond that delivered through CCE.

The work of CALS, CVM and CHE is connected to their Land Grant agricultural, veterinary and family health roots, with training there benefitting professionals, practitioners, and volunteers. In ILR, training almost exclusively benefits business and industry organizations and professionals (including those from organized labor and worker rights organizations) with an emphasis on improving organizational effectiveness, workplace practices and the lives of those who work.

3.2.1 Education (Non-degree) Programs Overview by Contract College

3.2.1.1 CALS Education

Much of the extension and outreach educational activities in CALS is carried out through CCE. These include organized educational activities with stakeholders to improve yield (plant or animal), increase food safety, identify and control invasive species, and enhance the economic potential of stakeholder businesses. Applied research is further used to develop educational

programming, provide on-farm visits, present talks to larger groups, and create articles, webinars, videos and websites. Audiences and stakeholders include animal, seafood, vegetable, fruit and field crop growers; arborists and gardeners; botanical gardens, arboreta, trade associations, and botanical societies; NYS Ag & Markets horticultural inspectors; and Integrated Pest Management scouts. Additional expertise is provided to personnel from food processing plants, warehouses, retail stores and food service operations, and pest control service companies who are involved in food quality assurance programs. CALS also engages members of professional societies (The Wildlife Society, Society of American Foresters, and American Fisheries Society), and organizations (NYFOA, Maple Producers, NYS Wildlife Management Association, Municipal engineers and highway officials). Finally, CALS faculty are involved in 4-H, community development, natural resource conservation, renewable energy and the NY Extension Disaster Education Network (EDEN). There are many examples of certificate programs including Maple Producers Forest Owners, Nursery and Landscape professionals, Food Safety, Wildlife Control, Local Roads, Seafood handlers, and training for DEC regulators. In 2015, CALS faculty engaged in over 180,000 contact hours with stakeholders, including 3367 workshops and resulting in 560 publications.

The **Department of Food Science** is home to significant educational activity advanced through the Institute for Food Safety. The mission of the food science extension programs at Cornell is to assist businesses in NYS and beyond with the implementation of new technologies and production strategies, which will improve the quality, safety, nutrition, and marketability of their product. Extension personnel, facilitate these activities through technology transfers, process validations, project incubation, piloting, crisis management support, workshops and web-based training, and consultation. The Institute for Food Safety offers an extensive variety of courses, training and/or certification in food safety, processing, and production.

The **Dyson School of Applied Economics and Management** plans and implements educational programs, largely through CCE, that connect specific areas of expertise and guidance with relevant clientele. Through executive, continuing, professional and adult education, Dyson offers non-degree programs at varying tiers of formality and structure to meet the needs of specific types of professionals or, where applicable, members of the general public. Seminars, conferences and schools address interests and needs in marketing, farm management, succession planning, and taxes.

3.2.1.2 CHE Education

CHE non-degree educational opportunities focus on the health and well-being of human beings and the complex relationship between their natural, social, and built environments. Ongoing applied research informs the conferences, non-credit courses, webinars and technical assistance offerings that are primarily targeted to professionals working with populations across the lifespan. The Residential Child Care Program provides training and technical assistance for professionals working in child care settings, including a train-the-trainer certification course in

Therapeutic Crisis Intervention. The ACT (Assets Coming Together) for Youth Center of Excellence is a national partnership led by BCTR. It provides resources, training, and technical assistance to professionals working with adolescents in the following areas: Comprehensive Adolescent Pregnancy Prevention, Successfully Transitioning Youth to Adolescence, and Pathways to Success. The Cornell Research Program on Self-Injury and Recovery provides web-based training for youth-serving professionals, school personnel, and medical professionals seeking to understand, intervene, and/or treat self-injury in adolescent and young adult populations. The Cornell Institute on Translational Research on Aging focuses on active aging, long-term care, and intergenerational relations. Dissemination includes innovative models of staff training and development, including those that link family members as partners with direct care staff.

Some organized, non-degree education provided by CHE faculty is connected to CCE, though these opportunities may also include other stakeholders. For example, the Parenting in Context program holds annual professional development in-service events for CCE parent educators and others who work with parents and children across NYS. The BCTR holds an annual Youth Development Research Update that is a conference for CCE youth development educators and youth service providers from community agencies, where topics focus on children and teens and how to better serve their needs. The Research Navigator Initiative supports research collaborations between Cornell faculty and CCE educators, promoting campus-community research partnerships, by training educators on research partnership development, research methodologies and practices, ethical considerations in research, and participant recruitment and retention strategies.

DNS is a cross-college unit, jointly administered by CHE and CALS. In its public engagement, DNS influences nutrition policy and practice through organized, non-degree education that reaches nutrition and public health professionals and paraprofessionals nationally and globally. The World Health Organization (WHO) Collaborating Center on implementation research in nutrition and global policy includes an in-person annual course designed to train nutrition scientists and practitioners in the application of scientific evidence in policy making. Experts from the WHO, Cochrane, Cornell, and the Micronutrient Initiative train participants in development of systematic reviews of nutrition interventions in populations, ultimately to ensure that WHO recommendations are based on sound evidence. In addition, Cornell NutritionWorks (CNW) is an online platform for nutrition professionals (currently 19,000 from 176 countries) that provides an affordable, convenient way to meet professional development needs.

Organized, non-degree education is also routinely provided by DNS/Food and Nutrition Education in Communities faculty. These offerings support Cooperative Extension and public health nutrition education programs for low-income populations, including the Expanded Food and Nutrition Education Program and the Supplemental Nutrition Assistance Program. Other faculty provide training for the Farmers' Market Nutrition Program (FMNP). Lastly, regular

webinars, in-person large conferences and smaller skills-based trainings target nutrition staff and partners in public health programs across NYS and nationally.

3.2.1.3 CVM Education

CVM offers non-degree, educational opportunities in production animal health, animal welfare and veterinary medicine. The college hosts continuing education events locally, domestically, and internationally, ranging from webinars and short Continuing Education events, to institutes and training programs. In 2015, 61% of CVM faculty reported being engaged in educational outreach initiatives including continuing education programs, public workshops and seminars, and K-12 education. Annual conferences include the New York State Veterinary Medical Conference, the Fred Scott Feline Symposium, the Cornell Farrier Conference, and the ASPCA Cornell Maddie's Shelter Medicine Conference. The Cornell Summer Dairy Institute provides a concentrated 6-week course to dairy professionals from around the world to enhance the well-being and production of dairy cattle. Although the majority of continuing education programming is aimed at scientists and veterinarians, many of the offerings advance the training and expertise of professionals in related fields, including technicians, educators, and administrators. In addition, the ambulatory service provides much on-farm training, often in Spanish, to farm management and employees. Maddie's Shelter Medicine Program is a comprehensive shelter medicine program engaged in animal shelter outreach, veterinary education, and continuing education for shelter vets and staff. In collaboration with the local shelter, veterinary interns and students provide all medical and surgical services to a shelter population of 2,000 animals annually. In addition to on-site extension work, many CVM faculty and AHDC staff provide email and phone consultation service for stakeholders, including veterinarians, farmers, pet owners, and animal shelters.

3.2.1.4 ILR Education

ILR offers certificate and continuing certification-credit offerings, as well as open enrollment and customized workshops and trainings for professionals and executives. The target population for these continuing education programs spans human resources, labor and employee relations professionals and attorneys; executives, managers and front-line workers; legislators and policy decision-makers; union leaders, members, and activists; and unionized and non-unionized organizations across the public sector, non-profits, and for-profit organizations. Some smaller programs target civil society representatives, program evaluators, and government officials. Interdisciplinary instruction in labor studies, human resources, compensation, employment law, leadership, conflict resolution, and disability studies is underpinned by the scholarship of ILR's tenure track faculty and enriched by the insight and expertise of its extension faculty and network of practitioners. Focused on the people-side of organizations and work, ILR non-degree programs are offered through in-person, distance synchronous and asynchronous-online courses. Programs provide a range of instruction approaches including intensive training, toolkits, case studies, and peer-learning.

3.3 PUBLIC DISCOURSE AND TECHNICAL ASSISTANCE

Technical assistance and contributing expertise in the arena of public discourse are important channels for linkages between science, practice and service. Technical assistance and contributions to public discourse are delivered by Cornell's contract colleges through highly organized programs and single-event activities or interactions, on and off campus. Such outreach presents opportunities for researchers, community-based organizations, and target populations to engage in mutually beneficial conversations and relationships that further the discovery and dissemination of practical solutions to complex problems—both locally and internationally.

The formal and informal extension and outreach networks of the four contract colleges are far reaching. Empirically-derived and research-informed technical assistance delivers useful and practical information directly to urban and rural businesses, communities, families and individuals —locally, nationally, and internationally— ensuring that research in the University reaches those it can benefit. Importantly, these networks are not unidirectional. Through extension and outreach, the contract colleges have, and continue to build, stakeholder relationships that are important in informing policy initiatives, practice dissemination and research aimed at identifying science-based solutions.

Target populations for technical assistance and informing public discourse are wide ranging across the scope of contract college programs. In ILR, these include populations facing employment discrimination; professionals in human resources, labor relations, or employee relations; attorneys; legislators and policy decision-makers; executives, managers and front-line workers; union leaders, members and activists; unionized and non-unionized organizations in the public and private sectors. For CVM and CALS, target populations include agricultural producers and regulatory agencies such as NYS Department of Environmental Conservation and NYS Department of Agriculture and Markets. CALS also serves highway maintenance, community leaders and elected officials. CVM serves veterinarians, pet owners, horse owners and the racing industry. DogWatch and CatWatch are monthly publications for pet owners that provide information on pet health and behavior. In all the contract colleges, informational websites and podcasts, fact sheets and brochures, and responses to media queries provide the important service of elevating public discourse on important issues.

Pertinent resources, research findings, informational materials, and on-demand and programmatic technical assistance is provided across these wide-ranging audiences. While ILR, for example, shares objective technical expertise with employers, community and labor organizations, individuals and policy makers to increase awareness and bring change for the better in workplace policies and practice, CVM provides veterinary, public health, and food production expertise to the public as well as technical assistance to animal owners. CHE works with policymakers, community educators and industry to address problems related to human health and well-being. Cornell expertise contributes to the success of residents, community

leaders, employers, workers, businesses, farmers and others engaged in agriculture and associated businesses by supporting them in making informed decisions about issues related to community improvement and sustainability, human resource management, civil leadership, and resource management.

Contributing to public discourse includes involvement of faculty, staff and students in local, state and federal task forces and commissions; community outreach through partnerships with school districts or community groups; legislative hearings; and forums that convene multiple stakeholders on a given topic. Broad-based public interaction also occurs through publicly accessible locations such as the Cornell Orchards, the Dairy Store, Conservatory, Herbarium, the Cornell Botanic Gardens and events at Empire Farm Days, the NY State Fair, Insectapalooza, and the Veterinary College Open House. Extension faculty also engage regularly with the media to inform and elevate discourse surrounding public policy. Public discourse topics include a range of contentious and timely issues such as genetically modified crops and GMO labelling, wildlife management concerns, coastal issues such as fisheries, recreation and tourism, climate change impacts on communities, water quality, prevention of the spread of aquatic invasive species, seafood safety, coastal hazard education and preparedness, minimum wage legislation, health care policy, adolescent sexuality and health, immigration policy, family leave policy, workers' rights, pay discrimination and "gig economy" work.

Metrics used within the contract colleges to measure the provision of technical assistance and public discourse engagement vary greatly program to program. Such measures include data provided annually to the Federal Highway Administration and New York State Department of Transportation and measured reductions in the use of P fertilizer in response to on-farm research by NMSP and PRODAIRY. Other metrics include Federal Formula Funds reporting, contact hours, the number and demographics of participants or community partners reached, and revenue generated by educational programs or fee-based assistance. Public discourse metrics could also include downloads of publications and repository data, website hits and webinar views, and media citations. Unfortunately, metrics tend not to be consistently or routinely compiled in ways that reveal trends and patterns.

3.4 STUDENT INVOLVEMENT IN EXTENSION AND OUTREACH

Student involvement in extension, outreach and engagement is widespread across campus, encompassing large numbers of undergraduate and graduate students. Extension faculty are passionate about mentoring Cornell students in local, statewide, national and international extension and outreach activities in many areas of study. Student involvement with extension and outreach takes the shape of internships, fellowships, classes with extension or outreach integrated into the course, research, pro bono consulting with external stakeholders, and numerous other forms of off-campus activity. Through these experiences, students learn to apply relevant

theories, practice skills, and reflect on what they have learned in the classroom and how it applies to the larger world.

Involvement in extension and outreach activities and in research projects provides students with inspirational learning opportunities that connect theory and practice; encourage interaction with others from different academic and cultural backgrounds; and grant practice using knowledge and skills in applied settings, all while providing needed services to stakeholders. Exchange between campus and communities is encouraged, and students gain critical participatory research and leadership skills relevant to their future employment.

Extension and outreach opportunities allow students to apply their educational experiences to projects and programs designed to solve real-life problems, grounding their learning experience more fully. Students demonstrate to themselves their ability to make positive change in the world around them and gain self-awareness, which often includes the uncovering of their own unconscious biases. They develop new cultural understanding and cross-cultural competence, gaining respect for people from different backgrounds and cultures. Students learn that outreach is a two-way street. Functionally, students learn to complete tasks in a timely manner; write effectively with a particular audience in mind; overcome challenges; persevere and problem-solve. Additionally, in research-based projects, students are exposed to the necessity of applying different data-gathering approaches with different populations, which enhances their scholarly agility, critical thinking and analytical reasoning skills.

Student engagement often takes place via internships. Both CALS and CHE offer CCE internships, which place undergraduate students with faculty mentors in county Association offices, often working with them on integrated research-extension projects. ILR's undergraduate High Road Fellows spend a summer in community-engaged research in Buffalo where interns expand the capacity and strengthen the network of nonprofits and cultural institutions in Buffalo. ILR research fellows also participate in applied research in a number of centers, institutes and programs. The PRYDE scholars program in CHE consists of students who spend their junior and senior years working with faculty on research related to youth development and applying their research via 4-H community programs.

Student engagement is also often embedded in coursework. For example, all students in the CHE Global Health major are required to engage in an approved and supervised experiential learning opportunity. In CALS, the Food Science Department has developed a required undergraduate capstone course, "Current Issues in Food Science," in which student teams work with food entrepreneurs to solve problems. Similarly, all students in CHE's CIPA program are required to take part in a public engagement activity. ILR's K. Lisa Yang and Hock E Tan Institute on Employment and Disability (YTI), provides an on-campus credit-bearing course sequence in Disability Studies that includes 11 courses across three ILR School departments. The Urban Semester (in CHE), Capital Semester (contract colleges) and Cornell-in-Washington (university-

wide) programs also combine coursework with experiential learning. Summer interns conduct applied field research in conjunction with Cornell faculty and graduate students, and summarize their project activities for scientific and lay audiences as appropriate. Some departments such as Natural Resources in CALS and Policy Analysis and Management in CHE offer research symposium opportunities and for-credit independent study opportunities.

Other student engagement occurs via student-faculty research partnerships. In ILR, these activities occur in its centers, institutes and programs, which work extensively with undergraduate, graduate and Ph.D. students in engaged learning internships and research assistantships. The BCTR engages undergraduate and graduate students in for-credit research and outreach programs as work-study and regularly paid employees; honor's thesis students; graduate research assistants; and as graduate students conducting masters and doctoral thesis research. In several departments and sections within the School of Integrative Plant Science (SIPS), an Extension & Outreach Assistantship program offers graduate student support comparable to teaching assistantships and research assistantships. Prospective students apply by proposing one or more projects or activities that contain an educational component, have an intended outcome that is of public value, and involve some level of collaboration with faculty and senior academic staff. With support from Engaged Cornell, graduate students pursuing cancer research participate in a shared learning course with cancer patients. In CALS, plant breeding students work directly with seed company partners, farmers, seed growers, and in some cases processors to develop and evaluate varieties that are relevant and productive in New York. Vegetable program students also work with chefs and restaurateurs to identify unique types of vegetables that are desired in the higher-end restaurant industry.

Finally, students are engaged via direct service provision. In CVM, DVM and graduate students provide direct care to animals and educational programming in both formal and informal settings. These range from the previously mentioned primary care and tertiary teaching facilities, to farms and fields, community centers, animal shelters, and various public arenas. In ILR's Speech and Debate Society student coaches train local and international middle and high school students as well as residents in state correctional facilities. In CALS, graduate students often share their research at workshops and public meetings as well as help with activities such as field days. In CHE, CIPA MPA students provide pro bono consulting to a range of clients, including governmental, non-profit and for-profit entities.

4. SUMMARY AND CONCLUSIONS

This report summarizes a systematic review of extension and outreach in the contract colleges of Cornell University conducted between 2015 and 2017. It is intended as a starting point for needs assessment and strategic planning.

The committee explored several parameters of extension and outreach, including its organization, programs, student participation, and resources. Despite the operational and disciplinary differences across the contract colleges, a SWOT exercise readily identified more similarities than differences. The collective input from the Task Force was distributed into five areas, yielding several recommendations, all of which are described below.

4.1 UNIVERSITY LAND GRANT HISTORY, STATE RELATIONS, AND GEOGRAPHY

Cornell's longstanding reputation for excellence in service to the state and nation is a strength of our extension and outreach programs. Multidisciplinary approaches to the application of knowledge continue to describe Cornell's commitment to extension and outreach. Our history also manifests as a limitation, demonstrated in a tendency to cling to historical priorities and a lack of agility in building toward future needs that may differ from those of the past.

The diversity and quantity of extension and outreach at Cornell is a strength. The range of constituencies served is large, including families, workers, practitioners, growers, industry groups, and policy makers at all levels. It is challenging to meet demands from so many sectors. The decentralized structure of Cornell further challenges collaboration and resource sharing across programs. There are obvious themes of emphasis evident in the current environment that would be strengthened by better communication and strategic fostering of collaboration across units.

The geographic positioning of programs is a strength: the College of Agriculture and Life Sciences (CAL S)'and College of Human Ecology (CHE)'s Cooperative Extension offices exist in all counties and 3 of 5 boroughs of New York City; the School of Industrial and Labor Relations (ILR) has offices in Buffalo and New York City; CAL S and the College of Veterinary Medicine (CVM) run programs in the heart of New York's milk and dairy industry, and new efforts across all the contract colleges target urban centers. Opportunities to co-locate and optimize use of physical space should be identified and embraced.

Areas of opportunity for collaboration and innovation include deployment of technology; linking domestic programs to international programs where there is alignment of need and interest; regionalization of programming to better leverage and share resources; better connecting students to extension programs; and leveraging our strengths across large themes such as food, health climate change. High levels of student participation in community-engaged learning at the current time aligns well with the outreach and extension mission.

4.2 ORGANIZATIONAL CHANGE, LEADERSHIP, AND STAFFING

University and college leadership is viewed as supportive of the mission in outreach and extension. Nevertheless, in the larger context of the university, faculty and staff are challenged to

balance and uphold multiple missions in extension and outreach, and teaching and research. Public engagement is often viewed by faculty and staff as being in competition, or incompatible with research accomplishment. Rewards for creativity and innovation in extension and outreach are not always evident, while rewards for accomplishment in research are clear. This has a negative impact on morale within the extension and outreach campus community.

In the current period and foreseeable future, unprecedented faculty renewal is occurring across the university. While this may be an opportunity for organizational change to address issues surrounding the allocation of effort across competing demands, the Task Force is concerned that without strategic consideration of extension succession, new faculty could be hired who disproportionately focus on other commitments, to the detriment of extension and outreach.

4.3 RESEARCH AND FUNDING

There is reciprocal benefit to be realized between strong research and strong extension and outreach. Strong extension programs can be drivers of research grant funding. With flat state operating support for the contract colleges over the past several years and greater competition for grants and contracts, funding for programs in extension and outreach is a limiting factor. There is need for new funding models. Philanthropy from alumni and grant-making foundations is viewed as an underutilized resource. Awareness and adoption of practices employed successfully in other programs on campus would promote further diversification of the funding portfolio. In the technical assistance and professional training arenas where funding comes from fee-for-service charges, competition from non-profits and for-profit businesses is increasing. These providers may be able to offer less expensive services (perhaps of lower quality, but this may not be paramount in the mind of the user) than contract colleges. Sharing of expertise and experiences relating to securing different types of revenue would help all four units during this era when a diversified funding portfolio is an essential strategy.

4.4 COMMUNICATIONS

Effective communication to internal and external audiences is essential to successful and sustainable extension, outreach and engagement activities. Communication of the impacts of these programs is hindered by shortfalls in defining and quantifying efforts and impacts, and a limited capacity for effectively “telling the story.” The brand and value of extension and outreach is not well understood and messaging feels stale and dated. This reinforces the largely unfounded impression that Cornell is clinging to history and not forward looking. A branding and communications strategy and implementation effort is needed at the level of the university across our extension, outreach and engagement activities.

Digital technology expands the reach of programs beyond the borders of the state, enabling New Yorkers to learn from a vast array of sources available by internet, and allowing Cornell to reach people around the world. Although there has been improvement in implementing contemporary

approaches to remote communication and education (for example, CCE webinars and the widespread use of video conferencing) it is essential that extension and outreach use the most effective forms of communication and strategies to reach audiences in ways that ‘address the needs of the day’. Innovation has been demonstrated in some areas by units that have made significant investments of resources for a particular project. It is hoped that the merger of the Center for Teaching Excellence and Academic Technologies will facilitate the process of implementing digital solutions for extension and outreach. However, it is still unclear where the support (financial, time, and technical) will come from; getting past these hurdles is critical to expansion and development of new programs and new audiences.

Although metrics have been identified and are used in individual programs, preparation of this report was challenged by the limited availability of data at an institutional level. Non-laborious methods and tools to describe and quantify extension and outreach across the contract colleges would improve our ability to communicate and assess their efforts and impacts.

4.5 DEVELOPMENT/FUNDRAISING

Alumni value the work of extension and outreach in these colleges and schools, yet gifts are less than 10% of revenue for any college extension and outreach programming. Stronger partnership between extension and Alumni Affairs and Development at the university and the college level would be advantageous. Targeted levels for fundraising that support student participation in the larger mission of extension and outreach would be an important step in further strengthening these mission-critical activities.

4.6 OBSERVATIONS AND STRATEGIC CONSIDERATIONS

Observations and strategic considerations of the Task Force are summarized in the table below.

OBSERVATIONS	CONSIDERATIONS
Approaches and support structures for extension and outreach are need and context dependent. There is variation across the contract colleges in their approach to extension and outreach including size/scope, staffing, and funding.	There is increasing need to diversify the portfolio of funding and delivery models for extension and outreach, with potential for successful models employed in one unit to be adopted by others. The mission-driven nature of the work is an important differentiator between Land Grant universities and other institutions such as consultancies and for-profits that increasingly compete with universities for talent, clients, and resources.
Cornell's decentralized nature risks creation of barriers, duplicated effort and redundant infrastructure investments.	Opportunities exist to leverage and share infrastructure resources – physical locations, technology, relationships.
There are a number of themes – e.g. food systems, economic development, health, sustainability, vulnerable populations – that cut across multiple colleges.	It is important to identify barriers that prevent effective thematic collaborations across colleges and find ways to advance cross-unit coordination.
The age demographic of faculty and staff at the university is inclusive of extension faculty (tenure track and extension track) and support staff. Many individuals are approaching retirement age and succession plans are needed at the individual, unit and strategic levels.	The distribution of effort in extension and outreach across tenure track and non-tenure track titles likely influences the connection of faculty research to extension and outreach missions. Connecting these is a great strength of a Land Grant institution that is a Research 1 University.
Historically based and dictated by statute, contract college extension and outreach is NYS focused, although with time the work has fueled growth into national and international contexts.	There may be value in being more intentional in transferring themes and approaches of state-oriented extension and outreach to national and international contexts.
Assessment and evaluation of outputs and impacts of extension and outreach are important both for program improvement and for communicating value.	There is an opportunity to share expertise and effort to address the need for data collection processes and metrics that will enable programs to better monitor, document, or scale learnings of operational success. Current metrics tend to be input metrics of headcounts or constituents served rather than metrics of change or improvement. New metrics for documenting societal impact could help gain support (government and philanthropic) for, and tell the successes of, extension and outreach.

In summary, there are opportunities for shared learning and collaboration, including leveraging of resources and strategic planning in thematic areas that are being addressed across multiple disciplines and dimensions in the contract colleges. Faculty renewal is an important consideration in strategic planning. Creation of a facilitating vehicle, such as a standing committee, is needed. Research and analysis of outcomes and impacts is also needed, both as inputs for strategic planning and for improved communication (to the campus, to higher education, and to the public) of the contributions being made in extension and outreach.

5. APPENDIX

APPENDIX A: ASSUMPTIONS AND CONSIDERATIONS UNDERLYING EXPENDITURE CALCULATIONS FOR CONTRACT COLLEGE EXTENSION AND OUTREACH

Using input gathered from the University Budget Office, the Office of Institutional Research and Planning, financial officers within the contract colleges, and task force members, data included in Table 2 includes all FY15 and FY16 expenditures coded as “extension” as well as a sub-set of expenses coded as “non-extension” that were deemed outreach.

Listed below are the departments and units within each contract college that were included in the totals in Table 2. Where relevant, college-specific considerations, exceptions and explanations are noted.

College of Agriculture and Life Sciences (Including Geneva Station)

- *Included:* CCE departments, Cornell Lab of Ornithology, New York Sea Grant, Agricultural Experiment Stations (at 50%), International Institute for Food Agriculture & Development, NEIMP Center, Shoals Marine Laboratory, and the Cornell Botanic Gardens (including all accounts in the extension category primarily aimed at children, garden tours, and adult education)
- *Considerations:* within the Cornell Lab of Ornithology and Cornell Botanic Gardens, not all expenditures can be considered extension or outreach as some programs are dedicated purely to scientific research, as well as administrative, membership or development activities.

College of Human Ecology

- *Included:* The Bronfenbrenner Center for Translational Research, CUCE-NYC, and the Cornell Institute of Fashion and Fiber Innovation
- *Considerations:* Expenditures may represent a lower bound estimate as there are a limited number of faculty members with appointments solely dedicated to extension (and a challenge of overlap of positions with instruction).

School of Industrial and Labor Relations

- *Included:* Center for Advanced Human Resource Studies, ILR Extension, Scheinman Institute for Conflict Resolution, Employment and Disability Institute, Institute for Compensation Studies, ILR Conference Center, Healthcare Transformation Project, Human Capital Development, and the Summer Debate Camp
- The Worker Institute was removed as it is impossible to quantify the extension work being done by tenure-track (“resident”) faculty at this time.

College of Veterinary Medicine

- *Included:* Animal Health Diagnostic Center; Cornell University Hospital for Animals; Cornell Ruffian Equine Specialists; Feline Health Center; CVM Continuing Education; and the outreach activities of the Swanson Shelter Medicine Program; Summer Dairy Institute; Expanding Horizons Program; the Long Island Duck Program; and the Community Practice Service Center
- The Aquavet Program; Summer Leadership Programs; and the Veterinary Investigators Program were not included