ADDENDUM

Proposal in Response to Vermont Legislative Joint Fiscal Office RFP: Providing an Analysis of Public Higher Education in Vermont

NCHEMS
National Center for Higher Education Management Systems

August 10, 2020

The National Center for Higher Education Management Systems (NCHEMS) is pleased to submit this addendum to our original proposal (dated July 16, 2020), at the request of the Select Committee. It discusses the adjustments to that proposal that are necessary to complete the project under the Select Committee's revised timeline, including changes in the proposed work activities, anticipated personnel, timeline of activities and deliverables, and price. While the revised set of deadlines is considerably more aggressive than the original set was, we are not planning to make substantial reductions in the deliverables originally put forward in our proposed scope of work. It was our sense that the original timeline was generous in its expectations for completed work, especially for the final report. This left room for us to adjust the sequencing of activities and processes without diminishing the work products we will deliver.

From our perspective, the Select Committee's revised timeline's most significant change was to shorten the period between the deadlines for the first and second interim reports in our proposal. Accordingly, our revised Phase I activities will cover the same ground as outlined in our original proposal while also incorporating much of what we had previously planned to accomplish in Phase II. This means that the first report prepared—the preliminary draft report—will address all four of the issues of scope outlined in the RFP. As in our original proposal, we expect that the preliminary draft report will more thoroughly address issues related to the topics concerning the financial sustainability of the VSC system, while including preliminary analyses and tentative proposed solutions for the other topic areas. The revised draft and final reports will incorporate additional analyses, information from stakeholders, and refinements and final adjustments to recommendations. The following discussion presents the full set of activities, as revised, and highlights important changes from the original proposal.

Phase I Activities

As mentioned above, the revised timeline will require NCHEMS to pack more of the analytical activity into this first phase. Not only will this phase include the detailed analysis of the VSC system's financial viability, it will also include the full environmental scan analysis originally planned for Phase II. Together these analyses will inform the development of one or more alternate scenarios for delivering postsecondary education programming in Vermont.

A. Compile and review materials. Immediately after the initiation of the project, NCHEMS staff will begin the process of compiling and reviewing materials that contain background information needed to establish context for the project and to lay the foundation for the work of the Select Committee and of NCHEMS. These

materials will include the statutes governing higher education and relevant prior studies, as well as documents concerning the state's workforce and economic development needs and strategies, programs in place to foster business/education partnerships, etc. Special attention will be given to work products of the VSCS Forward Task Force, the NVU Strong Advisory Committee, and the VTC Transition Advisory Task Force. Links to some of these necessary materials are provided in the RFP. Additional materials will be available online. NCHEMS staff will work with legislative staff and others to identify other, less publicly available materials that may be relevant to the project.

B. Develop data request. Many of the data needed for the project are held in NCHEMS databases. Other data can be obtained from materials published by VSCS and UVM, although these data may not be accessible in an electronic form that makes them readily useable. Some data, however, are not readily available and will require compilation by the institutions; data about county of origin of different student subpopulations and their enrollment patterns in specific institutions typically fall into this category. Data about enrollments in course sections in different departments and at different levels are another example. As one of the very early activities of the project, NCHEMS will prepare a request for data from VSCS and UVM. This request will include:
   - Data available in printed form (for example) that NCHEMS would like to have in electronic form.
   - Data that represents a compilation of data – either collected from campuses by the VSCS, a special run of data already held at the System office, or data collected by UVM.

   NCHEMS will attempt to minimize the burden to the System Office and institutions associated with these requests and will provide templates for their provision.

C. Conduct initial round of meetings. It is proposed that all of the meetings in this first phase be conducted electronically due to social distancing requirements and travel restrictions due to the pandemic. The purposes of these meetings will be multiple and include:

   1. Meet with the Steering Group and the Select Committee to:
      - Get acquainted with members,
      - Hear directly from the members their expectations regarding the work of the project and the scope of the desired content of the end product of that work,
      - Discuss NCHEMS' proposed approach to the work, get input, and respond to any questions Committee members may have,

- Discuss the timeline for the work, and
- Establish protocols for communicating with the Steering Group and the Select Committee and individual members.

2. Meet with legislative and NEBHE staff and other individuals who will be providing support to the Select Committee in one way or another for the purposes of
   - Getting acquainted – putting faces to names.
   - Understanding the roles to be performed by all the players – ensuring that we do not step on each other's toes or leave important functions unattended. For example, we assume that either legislative or NEBHE staff will be responsible for the arrangements and logistics of Committee meetings, but this may not be a correct assumption.
   - Determine the basis for defining "regions" within the state.
   - Establishing communication protocols.

3. Meet with the senior leadership of VSCS and UVM in order to
   - Get acquainted with individuals with whom we will be having continuing interaction
   - Listen to their hopes for (and concerns about) the work of the Select Committee
   - Discuss the data request referenced above in Activity B
   - Establish communication protocols

4. Meet with others identified in early communications with legislative staff, for example, the Chancellors of the VSCS institutions.

D. Conduct analyses related to the financial viability of the VSC System and its constituent institutions and develop alternate structural/delivery models. These activities will include:

1. Comparative analyses of other small institutional systems. Using publicly available data, NCHEMS will compare the VSC System with other systems in order to identify how the system stacks up with regard to:
   - Revenues, by source
   - Expenditures, by function
   - Staffing patterns, by category of employee
   - System performance
     1. Retention rates

2. Graduation rates—all students, Pell recipients, underrepresented minority (URM) students

These analyses will be conducted for the System Office, the sum of the constituent campuses, and the totals for the system. The purpose is to identify where, if at all, VSCS has opportunities to save money by organizing its activities differently. Given the history of the system and its funding problems, it could well be that the system has already been pushed to the wall and has few options remaining without significantly changing its approach to providing services.

2. Analyze class size information for each institution to determine if there are an inordinate number of small classes in some disciplines. This information will identify areas in which
   - Discontinuance of programs may be in order, or
   - Alternative modes of delivery would be in order. For example, delivering course electronically to a campus that is not maintaining a sustainable level of enrollments in a particular field.

3. Model enrollments necessary to achieve the State's educational attainment goal of 70% by 2025. NCHEMS has developed an interactive model (the Student Flow Model as described in section 5) that allows users to examine the combination of inputs and throughputs that would have to be achieved in order for a state's attainment goal to be met. The variables of greatest interest are:
   - High school graduation rate
   - College going rates of recent high school graduates
   - Completion rates of these students
   - Participation rates of adults
   - Completion rates of adults

   The results of this modeling can be used to create a set of input variables for the model described immediately below.

4. Utilize the COVID-19 Impact Model to determine impacts of different scenarios. The COVID-19 Impact Model was developed by NCHEMS in collaboration with SHEEO with funding support from the Bill and Melinda Gates Foundation. It allows users to investigate sector-level impacts on institutional funding and student affordability of different patterns of allocation of state resources as well as different enrollment levels and tuition

rates. The model will allow NCHEMS to identify scenarios that would ensure the sustainability of VSCS institutions. These scenarios will include:

- Enrollments at levels required to achieve the state's attainment goals.
- Enrollments at levels reduced by COVID-19.
- Different tuition levels. This will include the consequences of tuition-free programs.
- Different levels of state subsidy and different distributions of these funds between UVM and VSCS.

The objective of these analyses will be to determine the conditions, if any, under which VSCS in its current configuration can reach fiscal sustainability.

5. Estimate financial implications of alternative structural/delivery models for VSCS. On the presumption that it will be very difficult for VSCS to achieve financial sustainability within reasonable expectations for enrollments, tuition rates, and state subsidy, NCHEMS will investigate the financial implications of an alternative scenario, one in which VSCS functions much more as a system than as a collection of institutions. Under this scenario:
   - More of the back-office operations of campuses would be centralized, either at the System Office or at the campus within the system that has the greatest capacity to perform these functions.
   - More educational programs will be delivered collaboratively. Campuses would continue to offer programs that are economically viable but would import programs from other campuses to meet student needs for programs that are not locally sustainable.
   - Local sites would be maintained as student service centers.

   Based on these analyses, NCHEMS will develop rough estimates of the level of savings that could be realized by doing business in a very different way.

6. Summarize the results of the analyses. Based on the various analyses described above, NCHEMS will develop one or more scenarios under which VSCS can 1.) maintain fiscal sustainability and 2.) serve students, employers, and the State. These scenarios will include information about:
   - Different student bodies that would have to be served—and the number in each category (based on data specific to Vermont).
   - Tuition rates.
   - Productivity levels of institutions.
   - Delivery modalities that will have to be used.
   - Levels of state subsidy.

E. Conduct analyses related to how all the educational assets of the state can best be utilized to meet the needs of students, employers, and the state.

1. Compile a broad array of environmental scan data for the state of Vermont, including:
   a. Education attainment levels of the state's population and regions within the state
      - Compared to all other US states and OECD countries
   b. Per capita income of the state and regions within the state
      - Compared to the other US states
      - Trends relative to the US average
   c. In- and out-migration of the population and the education attainment levels of those arriving and leaving, as well as "churn" in the population, vis-à-vis other states. These analyses will provide critical information about both the way in which migration is shifting the mix of knowledge and skills in the workforce and the stability of the labor supply.
   d. Demography of the state and regions within the state
      - Population, by age category, as compared to US
      - Population by race
   e. The shape of the economy of the state and important ways in which it is different from the economy of the nation as a whole – employment in various industry sectors and gross state product per capita as compared to other states.
   f. Employment patterns
      - Employment by industry and occupation for the state versus the nation
      - Employment by industry and occupation for regions within the state
   g. Workforce participation levels
      - State versus other states
      - Regions within the state
      - By age, gender, and education attainment levels
   h. Current job openings statewide and regionally. NCHEMS will augment Vermont state data with data acquired from EMSI on job postings. The goal will be to examine the relationship between educational supply and occupational demand to identify key workforce shortage areas.
   i. The education pipeline:

- High school graduates
- College participation
- College retention and completion
- Participation of adults
- Retention and completion of adults

For each element, Vermont data will be presented in comparison to the other US states.

j. Non-credit enrollment and workforce programming.

k. Geographic enrollment patterns – the institutions in which students from different counties and subpopulations (first time recent high school graduates, all undergraduates, part-time students) enroll.

l. Student migration patterns—out-migration of Vermont students to institutions in other states and in-migration of students from other states to Vermont institutions.

m. Financing of high education
   - State versus student share and trends over time, by sector
   - Overall funding per FTE student by sector, in comparison to other states

n. Institutional productivity by sector – degrees/certificates produced relative to funding levels, compared to other states.

o. Affordability to students – by sector
   - Proportion of family income required to pay for college for families in different income categories
   - Unmet need for students by sector and family income category after accounting for student work, family contribution and grant aid

p. Innovation assets – Vermont's ranking on the New Economy Index and its various components, research funding at the state's Universities (by discipline area and in comparison to other states), and extent of research commercialization.

2. These analytic findings will be summarized in a graphic presentation along with a set of key findings identified by NCHEMS staff. Emphasis will be placed on:
   a. Workforce demand and supply for each region of the state
      - Workforce demand by industry and occupation

- Workforce supply—Number of credentials awarded by institution, program, and level. Credentials awarded by non-public institutions will be included in these analyses

b. Student demand—size and nature of underserved populations
   - Geographic regions of the state
   - Economic characteristics—access for low-income students
   - Race/ethnicity—while Vermont's minority population is relatively small, access for this population still requires attention
   - Adults—those with no college experience and those with some college experience, but no degree

c. Institutional performance/productivity. One approach to improving student enrollments and production of degree-holders needed by employers is to improve the performance of institutions. NCHEMS will investigate the extent to which improvements can be made in:
   - Graduation rates of enrolled students
   - Retention rates
   - Transfer rates

   These measures will be disaggregated for different student subpopulations as appropriate and as data are available.

d. Economic development. Although not an explicit requirement of the RFP, the role of higher education in the economic development/sustenance of the state and the regions in which institutions are located is an important factor to be considered. NCHEMS will analyze:
   - The economic contributions of institutions to the region and the state, measured by density of employment and wage differentials.
   - The links between the innovation assets represented by the institutions and the economic development strategies of the State.

   From these analyses, NCHEMS will identify the nature and geographic locations of the major unmet needs in the state.

3. Develop education delivery scenarios. Based on the needs analyses described above, NCHEMS will develop one or more scenarios describing how education can be delivered in ways that:
   a. Meet employer and student needs
   b. Utilize all the state's educational assets—VSCS and UVM—in responding to those needs

c. Recognize the economic development/sustainability needs of regions and the State.
d. Are affordable to both students and taxpayers

4. Develop an initial set of recommendations concerning:
   a. Priorities for goals to be achieved
   b. Delivery models that ensure that students/employers/communities in all parts of the state are served
   c. Resource allocation models that create incentives for the necessary collaborations
      - Guidance for the General Assembly
      - Guidance for VSCS
   a. Accountability metrics. Key metrics to be utilized in measuring progress toward priority objectives
   b. Governance of higher education in Vermont
      - The relationships between VSCS and UVM, especially aimed at ensuring necessary collaboration
      - Within VSCS, especially related to the allocation of functions between the System Office and campuses

I. Prepare a plan for stakeholder engagement. Given the more aggressive timeline, NCHEMS anticipates that stakeholder engagement efforts will have to be less extensive than originally planned. In general, NCHEMS will rely more heavily on gathering input from key informants that the Steering Group believes to be most essential to contact. At a minimum, however, NCHEMS will encourage the Steering Group to develop a single list of stakeholders who have a reasonably accurate and comprehensive perspective on the critical issues to be addressed from the following groups:
   1. Employers, civic leaders, faculty and staff, elected officials, education leaders, union leadership
   2. Representation from diverse geographic areas

J. Review preliminary recommendations with
   1. Steering Group
   2. Leadership of VSC (System and campuses)
   3. Leadership of UVM

K. Prepare a preliminary draft of the project report. In keeping with the focus in the first phase on the financial viability of VSC System, this preliminary draft report will more thoroughly cover analyses and recommendations on that topic, including:
   – Results of the analyses.

- Conclusions based on the analyses concerning the financial viability of the VSC System.
- Recommendations for short-term actions. Steps that should be taken by the legislature and the institutions prior to the beginning of FY22.

With the revised timeline, it will be necessary for the preliminary draft report to include a detailed outline of our findings concerning the other focus topics, while leaving room for refinement and further analysis in subsequent phases.

L. Conduct second meeting of the Select Committee. The agenda for this meeting will include:
   - Presentation of the preliminary draft of the project report
   - Identify changes needed before submission to the General Assembly and the Governor.
   - Discuss plans for Phase II of the project, including the need for additional analyses and scenarios.
   - Discuss process for stakeholder input during Phase II, especially to gain agreement on the list of key informants

M. Prepare final version of the preliminary draft report by December 4, 2020 as required by the Steering Group and submit it to the General Assembly and Governor as required by H. 961.

Phase II Activities

With only about 10 weeks between the first and second deadlines established by the Select Committee, Phase II for this project will be focused on refining and supplementing data analyses from the first phase, and on refining the recommendations that relate to a statewide strategy for higher education beyond the more narrow topic of the VSC System's financial viability. In addition, in this phase we will execute the stakeholder engagement plan to gather input from the key informants in the state. This plan, which will be developed in the first phase, will rely primarily on interviews conducted virtually or by phone, rather than focus groups as originally anticipated. NCHEMS also expects to streamline the collection of feedback on the refined draft report. This phase includes the following activities:

A. Refine and supplement analyses and scenarios for the delivery of postsecondary education to meet state needs. These will likely focus on:
   1. Completing any analyses that were pending the receipt of appropriate data
   2. Conducting additional analyses and developing scenarios as agreed to during Phase I.
   3. Refining recommendations based on additional analyses and drawing on input from the stakeholder interviews.

B. Execute the stakeholder engagement plan.

C. Prepare a draft of the refined draft report. Based on the analyses conducted and the information gleaned from the stakeholder interviews, NCHEMS will develop a refined draft of the project report. Expanding on the outline provided in the preliminary project report, the refined report will address recommendations regarding:

   1. Issues of governance—the organizational structure of VSCS (and assignment of functions within the system)—and the relationships between VSCS and UVM
   2. Steps to be taken to serve student needs in all parts of the state.
   3. Actions required to align education with workforce development goals and the needs of employers.
   4. Changes in state policy and practice needed to enable these actions
      – Approaches to allocation of resources
      – Changes in regulations
      – Accountability metrics

   The refined draft report will also address the issue of on-going fiscal sustainability of VSCS by presenting information that makes the case that the recommendations can be implemented in a fiscally sustainable way.

D. Review the refined draft report with leadership of VSCS and UVM. As the eventual implementers of the recommendations, educational leaders need to provide assurances that the recommendations are reasonable and feasible. If they are deemed otherwise, suggestions as to revisions that will make them so will be solicited.

E. Meet with the Steering Group to gather feedback on the refined draft report prior to meeting with the Select Committee as a whole.

F. Meet with the Select Committee to:

   1. Review the contents of the refined draft report
   2. Solicit recommendations for any needed changes
   3. Discuss activities to be conducted in the final phase of the project.

G. Make agreed-upon changes to the refined draft report

H. Submit the refined draft report by February 12, 2121, as required by the Steering Group and forward to the General Assembly and the Governor as required by H. 961.

Phase III Activities

The activities in this phase are directed toward preparing the final project report, which will incorporate and summarize the preceding reports, providing updates where appropriate, and sketching out an implementation plan with assignments to key partners in the reform of higher education in Vermont. Other than streamlining the process for gathering feedback on the draft final report from key stakeholders, there are no substantive changes proposed to accommodate the revised timeline. The specific activities that will be conducted as part of Phase III are as follows:

A. Prepare the final report in draft form. Drawing on all the information compiled during the course of the project—data analyses, interviews with institutional leaders, the Steering Group and the Select Committee, and conversations with stakeholders—NCHEMS will prepare a draft of the final report. The contents will include:

1. An introduction that describes the genesis of the project and the nature of the issues to be addressed.
2. The activities undertaken in the course of the project.
3. Presentation of key elements of the environmental scan data—the conditions facing Vermont within which recommendations were developed.
   - Student demand
   - Employer needs/workforce demand
   - Community needs/economic development
   - Financial environment
4. Strategy for sustainability of VSCS
   - Education delivery model
   - Business/financial model
5. Statewide strategic finance/allocation of financial resources to postsecondary education
   - To distribute resources to best achieve state goals
   - To establish incentives for the efficient deployment of state assets that aligns educational supply with the workforce needs of the state
6. Governance recommendations
   - Distribution of functions within VSCS—those that are the responsibility of the System office and those delegated to the campuses.
   - Necessary relationships between VSCS and UVM.
7. Implementation/action plan—steps to be taken by
   - The General Assembly

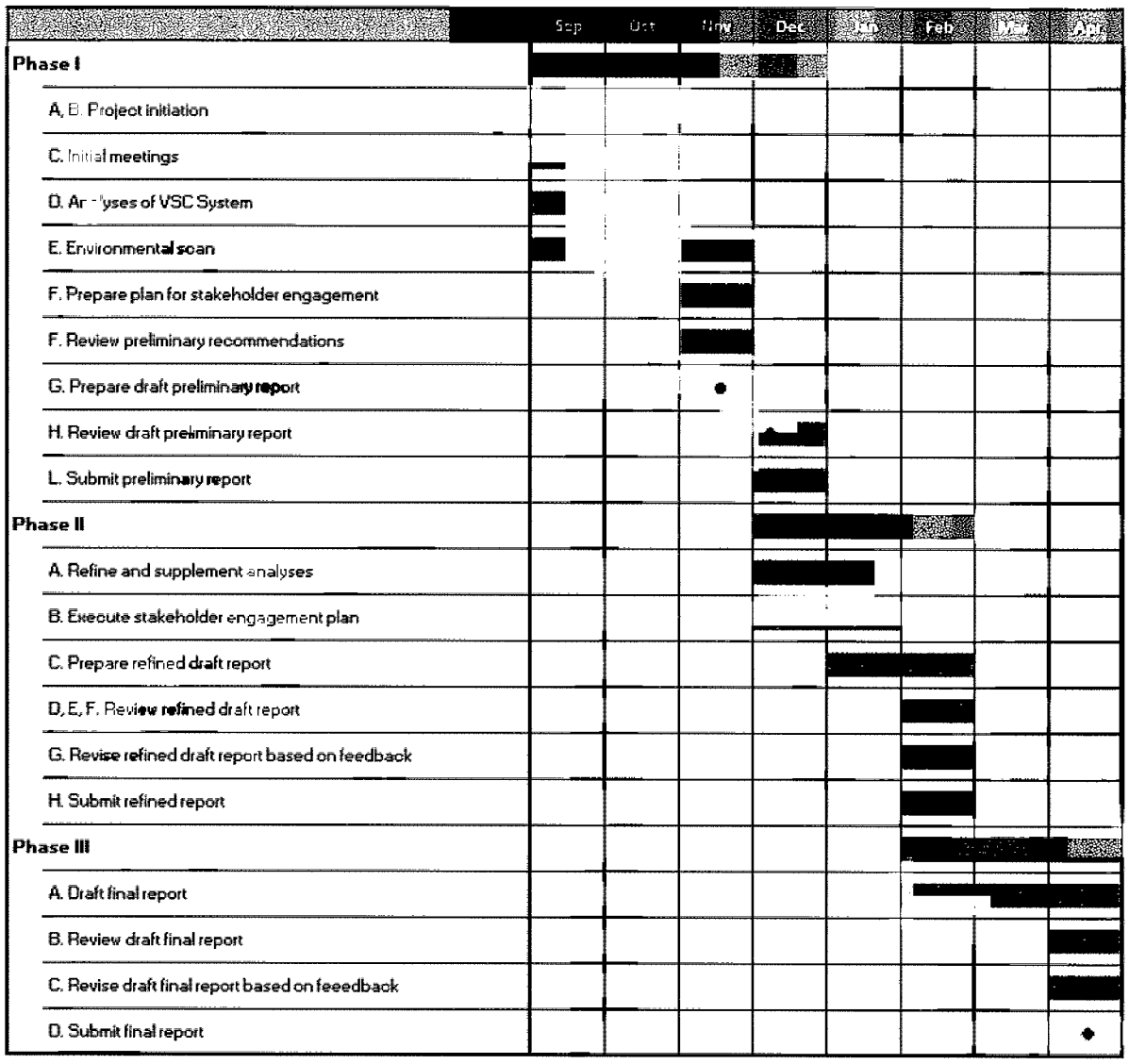
- Executive branch agencies
- VSCS
- UVM
- The business/employer community
- Other entities

B. Review draft final report with
   1. Leadership of VSCS and UVM
   2. The Steering Group and the Select Committee

C. Revise the draft report based on feedback obtained.

D. Submit the final report by April 16,2021.

Our revised timeline for completing this work is provided below.



Personnel

Since we submitted the original proposal, one of the staff members identified as part of our team, Rachel Christeson, has elected to pursue a new professional opportunity. We are accordingly adjusting our team and reassigning her role, which was principally focused on generating the necessary data analyses, to John Clark. John is a seasoned staff member who has headed up the development of many of NCHEMS' analyses and models. Please remove Rachel's bio from our proposal. In its place please add John Clark's bio which is attached.

Pricing

As previously noted, the Select Committee's revisions to the timeline have required us to rearrange the sequencing of the proposed work, but the work products collectively will be only minimally impacted. A reduction in the intensity of the anticipated stakeholder engagement plan, as well as a reorganization of the personnel necessitated by the departure of one staff member and the need to fit the project within existing commitments have also been factored into the revised budget.

As before, NCHEMS is including an estimate for travel expenses in the event that the Select Committee and NCHEMS mutually agree that an on-site visit to Vermont is both necessary and safe. This estimate is sharply reduced from the original proposal because we assume that stakeholder engagement activities will happen virtually or by phone, rather than in person, to accommodate the revised timeline (and given the ongoing pandemic conditions). The travel budget is estimated to be sufficient to cover costs associated with a presentation of the final report to the Steering Committee.

Proposed Revised Budget

	Hourly Rate	Hours	Total
Total of Salaries, Benefits, and Indirect Costs			$240,600
Travel			$3,000
Total with Travel			$243,600

John Clark
National Center for Higher Education Management Systems (NCHEMS)
3035 Center Green Drive, Suite 150 • Boulder, CO 80301-2251
Telephone: (303) 497-0308

Education

B.S. Colorado State University, Fort Collins, Colorado, 1993
Major: Mathematics

1988 to 1991

University of Southern Colorado, Pueblo, Colorado

Advanced Coursework

Probability and Mathematical Statistics
Advanced Multivariable Calculus
Applied Statistics
Linear Algebra
Combinatorial Theory
Differential Equations
Number Theory

Professional Experience

National Center for Higher Education Management Systems

October 2015 to present
Research Associate
March 2000 to October 2015
Data Analyst

Statistical and mathematical analysis of demographic data pertaining to counties, states, and institutions of higher learning

- Provided correlation, regression, reliability, and factor analysis statistics for *Measuring Up 2000*, the National Center for Public Policy in Higher Education's 50-State Report Card, to help select appropriate variable groups for student preparation, participation, benefits, completion, and affordability.
- Performed calculations showing student participation and degree production rates for projects in Pennsylvania, West Virginia, Kentucky, Georgia, California, Indiana, and Louisiana.
- Conducted cost of living analysis for the University of Hawaii System to help assess relative tuition costs in all 50 states.
- Provided the National Survey of Student Engagement with an analysis of representativeness of NSSE schools by comparing enrollments and degree production percentages for all four-year institutions to NSSE institutions.

- Conducted a county by county analysis of student migration within California to help establish regional boundaries for future research and analysis of institutional needs in California.

Provide thematic maps, charts, and tables relating to the demographics of counties, states, and institutions

- Provided the National Center for Public Policy in Higher Education with charts for all 50 states showing comparisons between student aid and tuition costs, tuition and family income, and public institution revenues and number of students.
- Generated peer group revenue/expense tables for the constituent campuses of the North Dakota University System to help establish revenue benchmarks for each institution.
- Construct thematic maps for analysis of states at the county level relating to population demographics, economic indicators, industry and labor variables, student participation, degree production rates, and education attainment levels.

Database Management and Quality Control

- Inspected data used in the 50 State Report Card for accuracy and completeness.
- Download and store state and county census data for research and analysis.
- Provide Senior Associates with finance, enrollment, completions, and characteristics data for reports, presentations, and analysis.
- Conduct Internet searches for remote web sites that provide county, state, and regional level demographic, economic and labor data.

October 1994 to June 1995

Assistant Environmental Scientist, Performance Technologies, Inc., Boulder, Colorado

Statistical and Mathematical Analysis of Environmental Data

- Utilized regression analysis, nonparametric tests, Pearson coefficient matrices, and hypothesis tests to detect changes in groundwater contaminant levels.
- Applied differential equation techniques to determine evaporation rates of mine pit lakes.
- Calculated rock-areas to generate area-weighted histograms involving net carbonate value percentages of mine pit lake floors.
- Produced prediction and confidence intervals for data sets involving soil and water contaminants.
- Determined best-fit equations for data sets involving soil matrix sizes.
- Provided calculations determining the geometric and arithmetic means of given data sets.

Computer Graphics

- Generated two- and three-dimensional data histograms, environmental feature graphics, line charts, and scatter plots for reports and presentations to clients.
- Produced normal probability plots from sampling data to help determine the population structures from which the data originated.
- Created accurate maps of investigation sights showing the locations of land features, buildings, and test wells.

Lab Support

- Set up and sampled humidity cell and rock column experiments.
- Collected pH, conductivity, and iron content readings from experiment samples.
- Calculated rock sample densities for use in properly setting up rock column experiments.
- Successfully maintained all long-term experiments while all lab personnel were at investigation sites.
- Performed general lab duties including lab clean-up, properly storing and measuring out chemicals, and carefully observing all lab safety rules and regulations.

Data Entry/Quality Control

- Entered and organized data into large spreadsheets for future reference and utilization.
- Cross-checked data entered into spreadsheets for accuracy and completeness.

February 1994 to May 1994

Statistical Process Control Technician (Internship), Micro Motion, Inc., Boulder, Colorado

Statistical Process Control

- Audited and generated Key Manufacturing Process Control Charts for ISO audits
- Analyzed data generated by key manufacturing processes using standard statistical techniques
- Advised management concerning sampling procedures and methods
- Investigated Process Capability and Specification Limits
- Generated sampling probability tables for management reference
- Educated shop personnel on Statistical Process Control techniques and proper interpretation of control charts

Receiving/Inspection

- Utilized calipers, micrometers, and specification diagrams to inspect supplier parts
- Performed data entry duties

Proposal in Response to Vermont Legislative Joint Fiscal Office RFP: Providing an Analysis of Public Higher Education in Vermont

National Center for Higher Education Management Systems

July 16, 2020

1. Introduction

The institutions within the Vermont State College System (VSCS) have been under financial stress for several years. The underlying reasons are numerous. The demographics of the state are not favorable. The population is aging and the numbers of young people are decreasing. In particular, the number of high school graduates has decreased precipitously and is projected to continue that trend into the future. The state has historically underinvested in the System and the COVID-19 pandemic has created circumstances that have exacerbated the fiscal problems facing the System and the state.

In response to these issues the VSC System has taken some major steps aimed at creating financial sustainability for the institutions in the system. In 2018, two of the system institutions were merged—Lyndon State College and Johnson State College were merged to create Northern Vermont University. In early 2020, the Chancellor of the System proposed closing three of the system campuses—the two campuses of Northern Vermont University and the main campus of Vermont Technical College in Randolph. Faced with considerable backlash, this proposal was withdrawn. While this proposal was not implemented, it did serve to catalyze action on the part of policymakers in the state. The General Assembly committed to providing "bridge" funding to sustain the system through FY21. Perhaps more importantly, through the Joint Finance Office, it commissioned Jim Page, former Chancellor of the University of Maine System, to review the financial situation of the System and to ascertain the level of bridge funding that would be required. In his report, Chancellor Page indicated that:

> "a reasonable and responsible Legislative set aside for bridge funding would be $30MM to address worse-case enrollment scenarios. An additional $10.3MM would be needed if there is a suspension of in-person instruction and residential services."

His reported also noted that:

> "VSCS provides enormous value to its students and to the state. It has managed generally to live within its means, but it is not organized for long-term success. It has neither the time nor resources to meet its challenges at the individual institutional level, yet it still operates mainly as a confederation, not yet as a system. This artificially restricts the Board and Chancellor's ability to undertake strategic planning and to allocate resources as they are needed to implement any such plan. It also restricts the degree and pace of change."

In this summary, Chancellor Page draws attention to the fact that the issues facing VSCS are not just financial in nature but extend to matters of governance and how educational services are delivered.

In June 2020, the Vermont General Assembly passed H. 961 calling for a study of public higher education in Vermont. This legislation created a Select Committee and provided for hiring a consultant to assist the Committee in "addressing the urgent needs of the Vermont State Colleges (VSC) and developing an integrated vision and plan for a high-quality, affordable, and workforce-connected future for higher education in Vermont." More

particularly, the legislation states that "The consultant will assist the Select Committee in offering recommendations on how to increase affordability for students, access, retention, attainment, relevance and fiscal sustainability, including the following issues:

1. The financial sustainability of the VSC system and its impact on institutional capacity to innovate and meet State goals and learners' needs, including a comparison of higher education programs, delivery models, tuition, tuition-reduction and tuition-free program, and structures in other states;
2. The current organizational structure of VSC and public higher education in Vermont and its ability to promote student success;
3. The alignment of VSC and the public higher education system in Vermont with workforce development goals, policy frameworks, and partnerships between businesses and institutions of higher educations that are designed to meet the needs of employers and promote the public value of education; and
4. Collaboration among Vermont's public higher education institutions to move Vermont toward increasing affordability for students, access, retention, attainment, relevance, and fiscal sustainability."

The Joint Fiscal Office has issued a Request for Proposal (RFP) seeking a contractor to perform the tasks enumerated above. The National Center for Higher Education Management Systems (NCHEMS) is pleased to submit this proposal in response to that RFP.

2. NCHEMS Background and Experience

NCHEMS' mission and work are exclusively addressed to the challenges facing higher education, and in doing so we have focused at both the state and institutional levels. A substantial portion of its engagements over time have involved strategic planning efforts. Among the most relevant recent work includes the facilitation of statewide strategic planning processes in numerous states, including Pennsylvania, Utah, Illinois, Connecticut, Tennessee, Kentucky, Louisiana, North Dakota, Oregon, and Wyoming, as well as addressing critical system-wide organizational redesigns in Connecticut, Kentucky, Louisiana, and Alaska. Relevant highlights from these efforts include our work in 2017 to conduct a system-wide sustainability review for the Pennsylvania State System of Higher Education (PASSHE). This effort addressed the strategic challenges facing the system and several of its individual member institutions, and put forward recommendations that addressed the actions and policies needed to ensure that the most vulnerable institutions in the System could be sustained. Throughout, priority was given to developing strategies that allowed System institutions in precarious financial condition to remain essential anchor institutions in their geographic regions and to continue providing critical access to higher education opportunities at the baccalaureate level for the (mainly) low- and middle-income students residing in the region. NCHEMS is also has provided technical assistance

for system-level strategic design and policy matters that have implications for accreditation, most recently the efforts to consolidate the twelve Connecticut State Community Colleges into a single institution with a single accreditation. NCHEMS has also played a major role in the design of entirely new institutions, such as Western Governors University and, more recently, Calbright College – the new wholly online institution in the California Community College System.

Together with its reputation for independence and impartiality and its credibility among state postsecondary policy experts across the nation, this extensive background makes NCHEMS uniquely qualified to undertake this project. Due to its unusually deep background and experience in addressing the relevant issues, its capacity to gather and analyze data (both quantitative and qualitative), its proven ability to surface essential insights, and its well-deserved reputation for independence and impartiality, NCHEMS can (and will) provide recommendations free of undue influence of any particular interest group.

Specifically, NCHEMS' organizational qualifications include:

- **Data resources.** The evidence base for this project requires data from a wide variety of sources. NCHEMS has compiled and routinely refreshes such data, giving us the ability to undertake rapid and informed analyses and modeling. NCHEMS also regularly uses these data resources in support of state-level policymaking, and we maintain a publicly accessible repository of some of these data at www.higheredinfo.org. Additionally, NCHEMS has an ongoing relationship with EMSI that allows us to obtain and analyze key data about workforce demand, including job postings data, for states and sub-state regions.

  While these extensive data holdings enable NCHEMS to make rapid progress in developing the project's evidence base, some data specific to Vermont will need to be collected from state sources. NCHEMS' long history of leadership in postsecondary data systems (e.g., NCHEMS developed the data categories and definitions that remain at the core of IPEDS, the federal data collection system for postsecondary education) allows us to develop data requests that are parsimonious and easy for respondents to understand. These data requests will be important to the project, but not onerous.

  Finally, NCHEMS serves as the implementation partner for the *Data for the American Dream* initiative (D4AD). D4AD is a collaboration of three pilot efforts (in Colorado, Michigan, and New Jersey) focused on education and workforce data that helps jobseekers make better career decisions in a changing economy and state agencies better align workforce needs with high-quality providers of education and training.

Lessons drawn from these efforts will be leveraged to help address Vermont's needs.

- **The ability to convert data to information.** In order for data to be useful in a strategic planning process, it must be converted to information that "tells a story" – one that helps decision makers identify key issues and points of leverage. Making accessible, information-rich presentations is a core competency that NCHEMS brings to each project, a competency that is nationally and internationally recognized.

- **Modeling.** Not all the information needed to support this project can be derived from analyses of past and current conditions. In such cases, NCHEMS augments the work by building projections of future conditions – student demand and workforce requirements – into models that allow for the exploration of alternative sets of assumptions, which lead to insights about how to finance the response. For the key factors underlying the recommendations the Select Committee will have to make, there are no foolproof projections—only judgments informed by a data-rich investigation of alternative assumptions. Examples of NCHEMS' modeling expertise can be found at https://sheeo.org/modeling-the-impacts-of-covid-19-on-public-institutions-white-paper-and-excel-tool/, which estimates the impact on public higher education finances due to the pandemic, and at https://nchems.org/projects/increasing-college-attainment-in-the-united-states/, which depicts a tool built to assess states' progress toward their educational attainment targets (and which has been customized for several other states over the past several years).

- **Background in strategic planning at the state level.** NCHEMS has developed strategic plans or facilitated the process of state strategic planning, over a very long time. (A partial list of states in which NCHEMS has done such work was provided earlier.) We are experts at gathering and analyzing data and at using these data to facilitate dialogue with stakeholders to add depth to the insights that help set State, system, and institutional priorities. We have a hard-won credibility all over the country in this work; the results of our work and recommendations have been regularly adopted.

- **Demonstrated experience in shaping a state conversation for how postsecondary education will need to adapt to meet evolving needs.** In a climate in which demographic and fiscal trends are historically unfavorable for postsecondary institutions, NCHEMS has developed a conceptual and systems perspective that helps us quickly diagnose issues and develop and test the feasibility

of potential recommendations. This expertise is visible through similar work in Alaska, Connecticut, Pennsylvania, and other states where we have consulted, and it draws heavily on the growing need for states and institutions to clearly articulate missions and share resources, including the delivery of academic programming. NCHEMS is also on the cutting edge of innovations that we expect will be crucial to the future of higher education broadly speaking, especially in those parts of the country that are confronting demographic decline. Among these are: the appropriate conversion to, and utilization of, new forms of educational delivery—distance and technology-mediated education, competency-based education, etc.; helping institutions identify areas of critical programming need for their region and state and harnessing statewide systems to better serve local markets; developing and implementing new forms of quality assurance; and the effective use of data for informed strategic decision making.

- **Awareness of the political (small 'p') context paired with impartiality.** NCHEMS can navigate the inevitable conflicts among stakeholder perspectives with respect, sensitivity and tone, and credibility, including the kind of issues that emerge within collective bargaining contexts. NCHEMS' work with the Pennsylvania State System of Higher Education (PASSHE) stands out in particular as an example of our work in engaging union leadership effectively and in advancing recommendations that were balanced and generally supported.

- **Independence and impartiality.** NCHEMS is a 501(c)(3) nonprofit organization headquartered in Boulder, Colorado with more than 50 years of service to the postsecondary education community. It is governed by an independent self-perpetuating board of directors whose members represent diverse perspectives on postsecondary education. Current members include:
  - Michael Collins, Vice President, Building Educational Pathways, Jobs for the Future
  - Mildred Garcia, President, American Association of State Colleges and Universities
  - David Longanecker, President Emeritus of the Western Interstate Commission for Higher Education, and previously an Assistant Secretary for Higher Education of the U.S. Department of Education
  - Sue Hodges Moore, Chief Strategy Officer, Ball State University
  - Peter Smith, Senior Advisor to the President for Strategy and Innovation; Orkand Chair, Professor of Innovative Practices, University of Maryland Global Campus

- Alan Wagner, Professor, Department of Educational Policy & Leadership, University of Albany, SUNY
- Rhonda Epper, President, Trinidad State Junior College

As an organization, NCHEMS comes by its experience and qualifications by virtue of the seasoned policy experts on the staff. These individuals are supported by an expert team of researchers and data analysts. The specific qualifications of key individuals on the project team are described in section 4.

3. Project Activities

As noted above, NCHEMS has considerable experience in conducting projects similar to the one called for in the Legislative Joint Finance Office RFP. NCHEMS brings a particular perspective to its work in this arena. This perspective:

1. Puts services to clients—students, employers, and the State—at the center of the approach to developing recommendations.
2. Recognizes the importance of institutions to the economies and social structure of local communities.
    a. Because they represent state and local assets that serve as anchor institutions for key communities, both as an employer and as an access point for postsecondary education to nearby students, closing institutions is an act of last resort.
    b. This does not mean that "business as usual" is the goal. Changing the set of functions performed by institutions has to be considered—for example, an institution may have to scale back the array of programs it delivers and serve as a student support center and a receive site for programs delivered electronically by other institutions.
3. The question then is to determine how to configure institutions/delivery of services in ways that:
    a. Meet client needs
    b. Maintain high levels of quality
    c. Are affordable to both students and taxpayers.

While conditions (and the requirements of the RFP) place financial viability of VSCS as first priority in the topics to be addressed in the first interim report, NCHEMS' approach to the project will be consistent with that presented above.

In order to support the Select Commission in support of its legislative charge, NCHEMS proposes to undertake the activities described in this section of the proposal. The activities are organized in three phases.

Phase I. Those activities required to produce the first interim report by December 20, 2020

Phase II. Those activities required to produce the second interim report by June 15, 2021

Phase III. Those activities required to produce the final project report by December 15, 2021

Phase I Activities

A. Compile and review materials. Immediately after the initiation of the project, NCHEMS staff will begin the process of compiling and reviewing materials that contain background information needed to establish context for the project and to lay the foundation for the work of the Select Committee and of NCHEMS. These materials will include such things as the statutes governing higher education and any relevant prior studies. Specifically included in the review will be work products of the VSCS Forward Task Force, the NVU Strong Advisory Committee, and the VTC Transition Advisory Task Force. Links to some of the necessary materials are provided in the RFP. Additional materials will be available online. NCHEMS staff will work with legislative staff and others to identify other, less publicly available materials that may be relevant to the project.

B. Develop data request. Much of the data needed for the project is held in NCHEMS databases. Other data can be obtained from materials published by VSCS and UVM, although these data may not be accessible in an electronic form that makes them readily useable. Some data, however, are not readily available and will require compilation by the institutions; data about county of origin of different student subpopulations and their enrollment patterns in specific institutions typically fall into this category. Data about enrollments in course sections in different departments and at different levels are another example. As one of the very early activities of the project, NCHEMS will prepare a request for data from VSCS and UVM. This request will include:
   - Data available in printed form (for example) that NCHEMS would like to have in electronic form.
   - Data that represents a compilation of data – either collected from campuses by the VSCS, a special run of data already held at the System office or data collected by UVM

   NCHEMS will attempt to minimize the burden to the System Office and institutions associated with these requests and will provide templates for their provision.

C. Conduct initial round of meetings. It is proposed that all of the meetings in this first phase be conducted electronically due to social distancing requirements and travel

impediments due to the pandemic. The purposes of these meetings will be multiple and include:

1. Meet with the Steering Group and the Select Committee to:
   - Get acquainted with members,
   - Hear directly from the members their expectations regarding the work of the project and the desired content of the end product of that work,
   - Discuss NCHEMS' proposed approach to the work, get input, and respond to any questions Committee members may have,
   - Discuss the timeline for the work, and
   - Establish protocols for communicating with the Steering Group and the Select Committee and individual members.

2. Meet with legislative and NEBHE staff and other individuals who will be providing support to the Select Committee in one way or another for the purposes of
   - Getting acquainted – putting faces to names.
   - Understanding the roles to be performed by all the players – ensuring that we do not step on each other's toes or leave important functions unattended. For example, we assume that either legislative or NEBHE staff will be responsible for the arrangements and logistics of Committee meetings, but this may not be a correct assumption.
   - Determine the basis for defining "regions" within the state.
   - Establishing communication protocols.

3. Meet with the senior leadership of VSCS and UVM in order to
   - Get acquainted with individuals with whom we will be having continuing interaction
   - Listen to their hopes for (and concerns about) the work of the Select Committee
   - Discuss the data request referenced above in Activity B
   - Establish communication protocols

4. Meet with others identified in early communications with legislative staff, for example the Chancellors of the VSCS institutions.

D. Conduct initial set of analyses—analyses designed to address the financial viability of the VSC System and its constituent institutions. These analyses take several forms.

1. Comparative analyses of other small institutional systems. Using publicly available data, NCHEMS will compare the VSC System with other systems in order to identify how the system stacks up with regard to:
   - Revenues, by source
   - Expenditures, by function
   - Staffing patterns, by category of employee
   - System performance
     1. Retention rates
     2. Graduation rates—all students, Pell recipients, underrepresented minority (URM) students

   These analyses will be conducted for the System Office, the sum of the constituent campuses, and the totals for the system. The purpose is to identify where, if at all, VSCS has opportunities to save money by organizing its activities differently. Given the history of the system and its funding problems, it could well be that the system is pushed to the wall and has few options without significantly changing its approach to providing services.

2. Analyze class size information for each institution to determine if there are an inordinate number of small classes in some disciplines. This information will identify areas in which
   - Discontinuance of programs may be in order, or
   - Alternative modes of delivery would be in order. For example, delivering course electronically to a campus that is not maintaining a sustainable level of enrollments in a particular field.

3. Model enrollments necessary to achieve the State's educational attainment goal of 70% by 2025. NCHEMS has developed an interactive model (the Student Flow Model as described in section 5) that allows users to examine the combination of inputs and throughputs that would have to be achieved in order for a state's attainment goal to be met. The variables of greatest interest are:
   - High school graduation rate
   - College going rates of recent high school graduates
   - Completion rates of these students
   - Participation rates of adults
   - Completion rates of adults

   The results of this modeling can be used to create a set of input variables for the model described immediately below.

E. Compile the data needed to populate the COVID-19 Impact model. This interactive model, developed in collaboration with SHEEO and funded by the Bill and Melinda Gates Foundation, allows the user to investigate the sector-level impacts on institutional funding adequacy and student affordability of different patterns of allocation of state resources as well as different enrollment levels and tuition rates. The model has been loaded with data from nationally available sources (primarily IPEDS). These data are two years out of date. NCHEMS will work with UVM and VSCS to acquire the data that will allow this model to be run with the most current data available, as well as to adapt it to provide results for Vermont institutions.

F. Utilize the model to determine impacts of different scenarios. The model will allow NCHEMS to identify scenarios that would ensure the sustainability of VSCS institutions. These scenarios will include:
   - Enrollments at levels required to achieve the state's attainment goals.
   - Enrollments at levels reduced by COVID-19.
   - Different tuition levels. This will include the consequences of tuition-free programs.
   - Different levels of state subsidy and different distributions of these funds between UVM and VSCS.

   The objective of these analyses will be to determine the conditions, if any, under which VSCS can reach fiscal sustainability.

G. Estimate financial implications of alternative structural/delivery models for VSCS. On the presumption that it will be very difficult for VSCS to achieve financial sustainability within reasonable expectations for enrollments, tuition rates, and state subsidy, NCHEMS will investigate the financial implications of an alternative scenario, one in which VSCS functions much more as a system than as a collection of institutions. Under this scenario:
   - More of the back-office operations of campuses would be centralized, either at the System Office or at the campus within the system that has the greatest capacity to perform these functions.
   - More educational programs will be delivered collaboratively. Campuses would continue to offer programs that are economically viable but would import programs from other campuses to meet student needs for programs that are not locally sustainable.
   - Local sites would be maintained as student service centers.

   Based on these analyses, NCHEMS will develop rough estimates of the level of savings that could be realized by doing business in a very different way.

H. Summarize the results of the analyses. Based on the various analyses described above, NCHEMS will develop one or more scenarios under which VSCS can 1.) maintain fiscal sustainability and 2.) serve students, employers, and the State. These scenarios will include information about:
   - Different student bodies that would have to be served—and the number in each category (based on data specific to Vermont).
   - Tuition rates.
   - Productivity levels of institutions.
   - Delivery modalities that will have to be used.
   - Levels of state subsidy.

I. Review these scenarios with key constituency groups. These reviews will include (as a minimum) VSCS and campus leadership, UVM leadership, union leadership and the Steering Group. The discussions will focus on the scenarios presented with the objectives of:
   - Identifying weaknesses in the scenarios. What was missed that needs to be incorporated?
   - Determining acceptability of each of the scenarios. What are the political realities associated with implementing each one? Are there reasons why one or more should not be given further consideration?

J. Prepare draft of first interim report. This draft will incorporate:
   - Results of the analyses.
   - Conclusions based on these analyses.
   - Recommendations for short-term actions. Steps that should be taken by the legislature and the institutions prior to the beginning of FY22.

K. Conduct second meeting of the Select Committee. The agenda for this meeting will include:
   - Presentation of the draft first interim report and identification of changes needed before submission to the General Assembly and the Governor.
   - Discuss plans for Phase II of the project.
   - Discuss process for stakeholder input during Phase II

L. Prepare final version of first interim report and submit it to the General Assembly and Governor as required by H. 961.

Phase II Activities

Phase I activities focused on determining the circumstances under which VSCS can be sustained into the future. Phase II addresses a broader set of issues—how the educational assets of the state can best be utilized to meet the needs of students, employers, and the State. In this context, "best" includes both providing needed services and providing those services in ways that make them affordable to both students and taxpayers. The topics covered include (as stated in the RFP):

1) "the current organizational structure of VSC and its ability to promote student success
2) The alignment of the VSC and workforce development goals, policy frameworks, and partnerships between businesses and institutions of higher education...
3) Collaboration among Vermont's public higher education institutions" in ways designed to attain these objectives.

The activities NCHEMS will undertake in pursuit of these objectives are described below.

A. Review relevant documents. NCHEMS will review documents related to this portion of the assignment, especially those dealing with workforce and economic development needs and strategies, programs in place to foster business/education partnerships, and the nature and scope of existing programs.

B. Compile a broad array of environmental scan data for the state of Vermont, including:
    1. Education attainment levels of the state's population and regions within the state
        - Compared to all other US states and OECD countries
    2. Per capita income of the state and regions within the state
        - Compared to the other US states
        - Trends relative to the US average
    3. In- and out-migration of the population and the education attainment levels of those arriving and leaving, as well as "churn" in the population, vis-à-vis other states. These analyses will provide critical information about both the way in which migration is shifting the balance of knowledge and skills in the workforce and the stability of the labor supply.
    4. Demography of the state and regions within the state
        - Population, by age category, as compared to US
        - Population by race

5. The shape of the economy of the state and important ways in which it is different from the economy of the nation as a whole – employment in various industry sectors and gross state product per capita as compared to other states.

6. Employment patterns
   - Employment by industry and occupation for the state versus the nation
   - Employment by industry and occupation for regions within the state

7. Workforce participation levels
   - State versus other states
   - Regions within the state
   - By age, gender, and education attainment levels

8. Current job openings statewide and regionally. NCHEMS will augment Vermont state data with data acquired from EMSI on job postings. The goal will be to examine the relationship between educational supply and occupational demand to identify key workforce shortage areas.

9. The education pipeline:
   - High school graduates
   - College participation
   - College retention and completion
   - Participation of adults
   - Retention and completion of adults

   For each element, Vermont data will be presented in comparison to the other US states.

10. Non-credit enrollment and workforce programming.

11. Geographic enrollment patterns – the institutions in which students from different counties and subpopulations (first time recent high school graduates, all undergraduates, part-time students) enroll.

12. Financing of high education
   - State versus student share and trends over time, by sector
   - Overall funding per FTE student by sector, in comparison to other states

13. Institutional productivity by sector – degrees/certificates produced relative to funding levels, compared to other states.

14. Affordability to students – by sector

- Proportion of family income required to pay for college for families in different income categories
- Unmet need for students by sector and family income category after accounting for student work, family contribution and grant aid

15. Innovation assets – Vermont's ranking on the New Economy Index and its various components, research funding at the state's Universities (by discipline area and in comparison to other states), and extent of research commercialization.

C. These analytic findings will be summarized in a graphic presentation along with a set of key findings identified by NCHEMS staff. Emphasis will be placed on:

1. Workforce demand and supply for each region of the state
   - Workforce demand by industry and occupation
   - Workforce supply—Number of credentials awarded by institution, program, and level. Credentials awarded by non-public institutions will be included in these analyses
2. Student demand—size and nature of underserved populations
   - Geographic regions of the state
   - Economic characteristics—access for low-income students
   - Race/ethnicity—while Vermont's minority population is relatively small, access for this population still requires attention
   - Adults—those with no college experience and those with some college experience, but no degree
3. Institutional performance/productivity. One approach to improving student enrollments and production of degree-holders needed by employers is to improve the performance of institutions. NCHEMS will investigate the extent to which improvements can be made in:
   - Graduation rates of enrolled students
   - Retention rates
   - Transfer rates

   These measures will be disaggregated for different student subpopulations as appropriate and as data are available.
4. Economic development. Although not an explicit requirement of the RFP, the role of higher education in the economic development/sustenance of the state and the regions in which institutions are located is an important factor to be considered. NCHEMS will analyze:

- The economic contributions of institutions to the region and the state, measured by density of employment and wage differentials.
- The links between the innovation assets represented by the institutions and the economic development strategies of the State.

From these analyses, NCHEMS will identify the nature and geographic locations of the major unmet needs in the state.

D. Develop education delivery scenarios. Based on the needs analyses, NCHEMS will develop one or more scenarios describing how education can be delivered in ways that:
   1. Meet employer and student needs
   2. Utilize all the state's educational assets—VSCS and UVM—in responding to those needs
   3. Recognize the economic development/sustenance needs of regions and the State.
   4. Are affordable to both students and taxpayers

E. Develop an initial set of recommendations concerning:
   1. Priorities for goals to be achieved
   2. Delivery models that ensure that students/employers/communities in all parts of the state are served
   3. Resource allocation models that create incentives for the necessary collaborations
      - Guidance for the General Assembly
      - Guidance for VSCS
   4. Accountability metrics. Key metrics to be utilized in measuring progress toward priority objectives
   5. Governance of higher education in Vermont
      - The relationships between VSCS and UVM, especially aimed at ensuring necessary collaboration
      - Within VSCS, especially related to the allocation of functions between the System Office and campuses

F. Prepare a plan for stakeholder engagement.
   1. Groups to be consulted—employers, civic leaders, faculty and staff, elected officials, education leaders, union leadership
   2. Geographic areas
   3. Responsibilities for inviting participation and making arrangements.
      - NCHEMS requests that this be done by JFO staff or other individuals in Vermont. In-state individuals have a far better sense of whose voices need to be heard. Experience indicates that invitations are more

favorably received if they come from someone in the state rather than from an out-of-state consultant.

G. Review recommendations with
   1. Steering Group
   2. Leadership of VSCS (System and campuses) and UVM

H. Meet with Select Committee to:
   1. Review the set of initial recommendations—identify areas where change is necessary
   2. Review plan for stakeholder engagement

I. Conduct meetings to obtain stakeholder input
   1. NCHEMS will present a small set of data that sets the stage for the conversation—data about student and employer needs and the recommended approaches to serving these needs
   2. NCHEMS will facilitate a discussion about
      - The data presented. Are there nuances/errors in the data that need to be understood or corrected?
      - Initial recommendations. Are there negatives that must be recognized? Are there alternatives that need to be examined, or preferred alternatives that yield similar results?
      - Barriers to the changes necessary to implement recommendations.

J. Prepare a draft of the second interim report. Based on the analyses conducted and the information gleaned from the stakeholder interviews, NCHEMS will develop a draft of the second interim report. This report will address recommendations regarding:

   1. Issues of governance—the organizational structure of VSCS (and assignment of functions within the system)—and the relationships between VSCS and UVM
   2. Steps to be taken to serve student needs in all parts of the state.
   3. Actions required to align education with workforce development goals and the needs of employers.
   4. Changes in state policy and practice needed to enable these actions
      - Approaches to allocation of resources
      - Changes in regulations
      - Accountability metrics

   The draft interim report will also address the issue of on-going fiscal sustainability of VSCS by presenting information that makes the case that the recommendations can be implemented in a fiscally sustainable way.

K. Review the draft of the second interim report with leadership of VSCS and UVM. As the eventual implementers of the recommendations, educational leaders need to provide assurances that the recommendations are reasonable and feasible. If they are deemed otherwise, suggestions as to revisions that will make them so will be solicited.

L. Meet with the Select Committee to:
   1. Review the contents of the draft report
   2. Solicit recommendations for any needed changes
   3. Discuss activities to be conducted in the final phase of the project.

M. Make agreed-upon changes to the draft second interim report

N. Submit the second interim report to the General Assembly and the Governor as required by H. 961.

Phase III Activities

The activities in this phase are directed toward preparing the final project report. This report will incorporate and summarize the preceding reports, provide updates where appropriate to make note of actions taken to date. It will also add new content that presents an implementation plan with specific assignments to key partners in the reform of higher education in Vermont, especially the legislature, the executive branch, UVM and VSCS, and the business community among others. The specific activities that will be conducted as part of Phase III are as follows:

A. Prepare the final report in draft form. Drawing on all the information compiled during the course of the project—data analyses, interviews with institutional leaders and the Select Committee, and conversations with stakeholders—NCHEMS will prepare a draft of the final report. The contents will include:

   1. An introduction that describes the genesis of the project and the nature of the issues to be addressed.
   2. The activities undertaken in the course of the project.
   3. Presentation of key elements of the environmental scan data—the conditions facing Vermont within which recommendations were developed.
      - Student demand
      - Employer needs/workforce demand
      - Community needs/economic development
      - Financial environment

4. Strategy for sustainability of VSCS
   - Education delivery model
   - Business/financial model
5. Statewide strategic finance/allocation of financial resources to postsecondary education
   - To distribute resources to best achieve state goals
   - To establish incentives for the efficient deployment of state assets that aligns educational supply with the workforce needs of the state
6. Governance recommendations
   - Distribution of functions within VSCS—those that are the responsibility of the System office and those delegated to the campuses.
   - Necessary relationships between VSCS and UVM.
7. Implementation/action plan—steps to be taken by
   - The General Assembly
   - Executive branch agencies
   - VSCS
   - UVM
   - The business/employer community
   - Other entities

B. Review draft final report with
   1. Steering Group
   2. Leadership of VSCS and UVM

C. Revise the draft report based on feedback obtained.

D. Meet with Select Committee
   1. Discuss contents of draft report, especially the action plan.
   2. Identify changes recommended by the Committee prior to submission of the report to the General Assembly and the Governor.

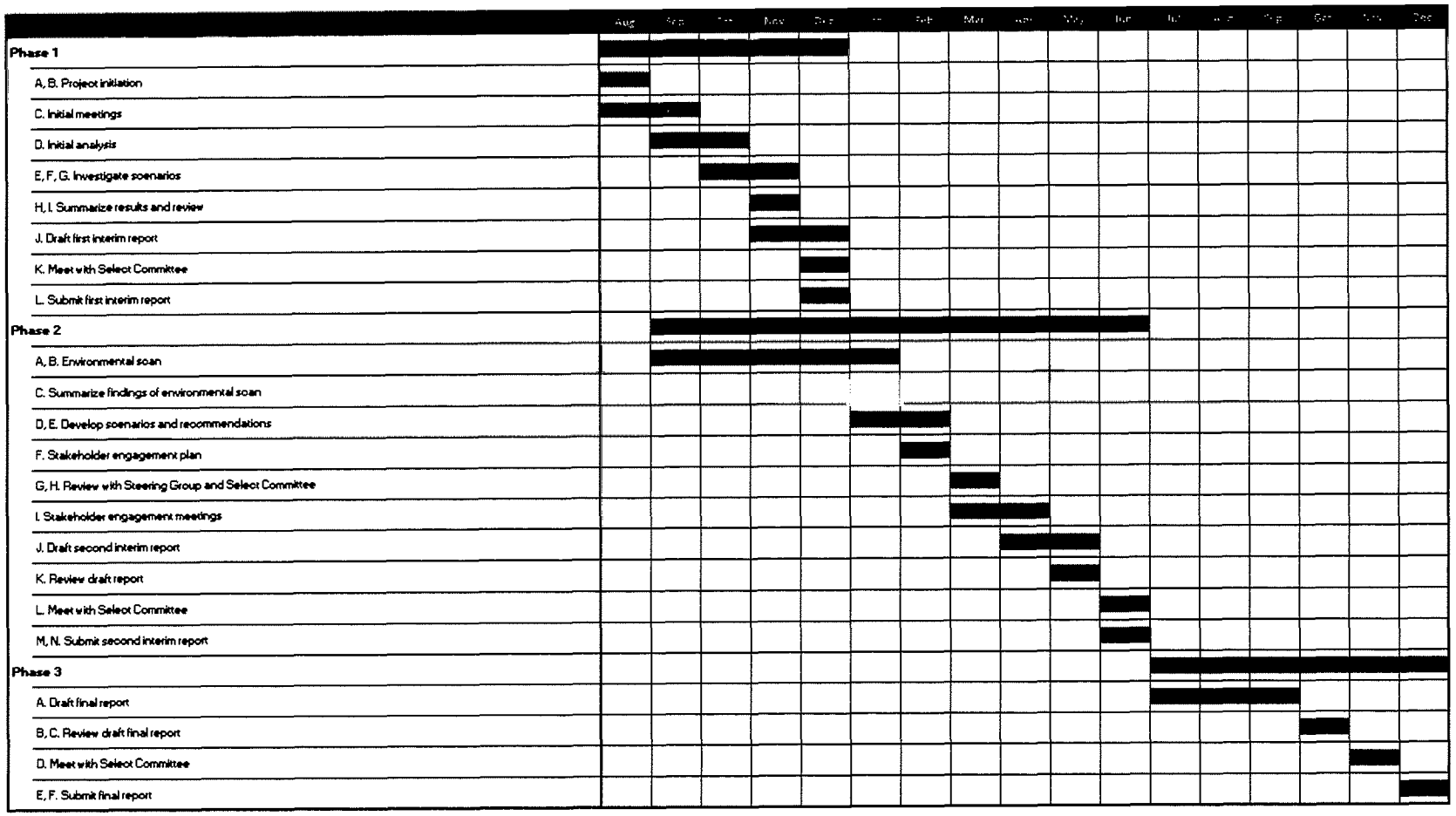
E. Make agreed-upon modifications to the report.

F. Submit the final report.

While not an expectation of the RFP, NCHEMS staff will be available to present the report and its recommendations to policymakers upon request.

A proposed timeline for the major activities is presented in the chart on the next page.

Proposed Timeline of Activities



4. Project Staffing

NCHEMS has nationally recognized experts in each of the substantive areas required to support the Select Committee as it goes about its work. The staff members who will be engaged on the project include:

1. **Brian Prescott**, Vice President. Dr. Prescott brings a broad array of expertise to the project. His background in planning has largely addressed strategic issues at the state level and for systems. In particular, he recently led strategic planning projects and/or authored the final reports in Utah for a legislative strategic planning commission, in Iowa for the Iowa College Student Aid Commission, and in Wyoming for the Wyoming Educational Attainment Executive Council. Especially relevant has been his work in as the principal author of the Strategic System Review for PASSHE, a report which has formed the basis of much of that system's subsequent strategic initiatives. Prescott also conceptualized the design for the COVID-19 Impact Model that NCHEMS recently built in partnership with SHEEO. He is a national expert in policy related to affordability, demographics, data systems and their use, postsecondary finance, and workforce alignment.

   Prescott will lead the project, be the principal point of contact for the Select Committee, participate in meetings and conversations, design data analyses and stakeholder engagement activities, develop final products, and manage the NCHEMS' team's work.

2. **Dennis Jones**, President Emeritus. An expert in higher education needs assessments and in higher education finance, Mr. Jones brings a vast experience working with states to make difficult but necessary strategic decisions. He wrote the seminal article on Strategic Finance in Higher Education and has assisted numerous states in developing funding models that are consistent with their needs and means. He has also been instrumental in developing a tool for calculating the costs of alternative models of educational delivery (www.nchems.org/projects/cbe-cost-model/). He has worked on projects in Vermont on several occasions and has a good grasp of the higher education landscape in the state and the region.

   Jones will provide advice and counsel to the project—his long experience and involvement in similar issues in Vermont, throughout New England, and elsewhere will be a valuable source of historical and contextual knowledge. Jones will also participate in meetings and conversations, help develop and evaluate possible recommendations, and assist in the development of the final products.

3. **Gina Johnson**, Senior Associate. Prior to joining NCHEMS in 2019, Dr. Johnson served as an instructor, faculty development coordinator, institutional research analyst, and Executive Director of Institutional Research and Analysis in various colleges and

universities before moving to a more national focus in her work. Johnson has experience leading and serving on university committees to build consensus and utilize data to inform recommendations for decision making. While leading the Institutional Research and Analysis function at the University of Denver, Gina was appointed to the Executive Committee of the Transformative Directions Advisory Committee as the newly appointed chancellor of the university organized a university-wide strategic planning initiative to envision a new future for university. Leading the data collection and analysis efforts as the main contact to the external consultants and internal task forces allowed her to positively impact the process in a collaborative manner, engaging all stakeholders. In addition to her experience with university-wide strategic planning and task force work (see resume for additional specific universities served), Johnson has led efforts in higher education to reimagine the coordination and use of data and analytics to impact student and university success, creating and guiding the collaborative efforts of three higher education professional associations—AIR, EDUCAUSE, and NACUBO—in producing the Joint Statement on Analytics and its related resources. Using data to inform strategic direction, developing key performance indicators to measure success in meeting strategic goals, and creating an environment in which a university can successfully use data to inform their strategic initiatives are areas where Johnson has been a leader.

4. **Rachel Christeson**, Research Associate. Dr. Christeson has extensive experience in the use of data to inform strategic planning. As a member of the NCHEMS team, Christeson has headed up the analysis of data that has supported strategic planning efforts in several states, and has built data models to project student progress into and through college, to set institutional completion goals, and to assess affordability for students from different income groups. Her work focuses on helping states and institutions utilize available data to better understand trends and to identify priorities and high-impact practices, including the development of appropriate performance metrics. Christeson has served as an advisor on data management and usage for organizations including the National Council for State Authorization Reciprocity Agreements (NC-SARA), the Colorado Department of Higher Education, the Colorado Community College System, and Metropolitan State University of Denver.

   Christeson will help lead the development of the necessary data analyses, including defining the data requests to be made of VSC, UVM, and other state sources, adapt NCHEMS' models as appropriate, and participate in stakeholder engagement activities.

5. **Sally Johnstone**, President. Dr. Johnstone is an internationally recognized expert on alternative delivery models for higher education – the use of electronically enhanced approaches to make the delivery of educational content both more effective and more efficient. She, along with Mr. Jones, led the design and early development of Western

Governors University. She served as a Vice President of that University for five years prior to joining NCHEMS. Most recently she served as the primary consultant on the development of a statewide, online, competency-based community college serving the state of California. Her expertise will be especially valuable as the state considers how to develop the delivery capacity that can most cost-effectively serve the identified demand for postsecondary services in different regions of the state.

Johnstone's expertise in alternative delivery modes will be leveraged to craft recommendations that are future-oriented and fit within Vermont's context. She will also help develop recommendations and review the final products.

Resumes for the above-named individuals are attached in Appendix A.

These key team members will be supported by database and analysis specialists on the NCHEMS staff who have deep experience in performing the analyses, building the models, and creating presentation graphics required for the project.

Collectively, the team will acquire the necessary knowledge of VSC and UVM by reviewing publicly available documents, relevant legislation, board agendas and minutes, and other documents that we will request from the state. Our extensive experience using Census data, EMSI's proprietary collections on alumni profiles and on job postings, and state data on population and industry/occupational projections will inform our understanding of Vermont's demographic and workforce needs, as will our analyses of data we will request from state agencies for data that are not routinely made available publicly.

NCHEMS will require a limited amount of assistance from Vermont state employees. Most importantly, to ensure that we are able to gather input from the most appropriate stakeholders, NCHEMS will appreciate assistance from state agency and institutional leaders and their staff to assist us by identifying those key individuals and inviting them to stakeholder engagement activities, as well as participating in those events themselves as appropriate. Assistance in organizing the logistics of any in-person or virtual meetings will be needed as well. Finally, NCHEMS will also need relevant state employees to respond to requests for data and other information in a timely and thorough manner, and to point us to resources that may be helpful and relevant as appropriate.

5. Data Sets and Models

Having developed the precursor to what became IPEDS, the official federal data collection on postsecondary education, NCHEMS maintains an extensive dataset on postsecondary institutions across the nation going back decades. NCHEMS also has extensive background in using data from the Census Bureau, especially the American Community Survey that

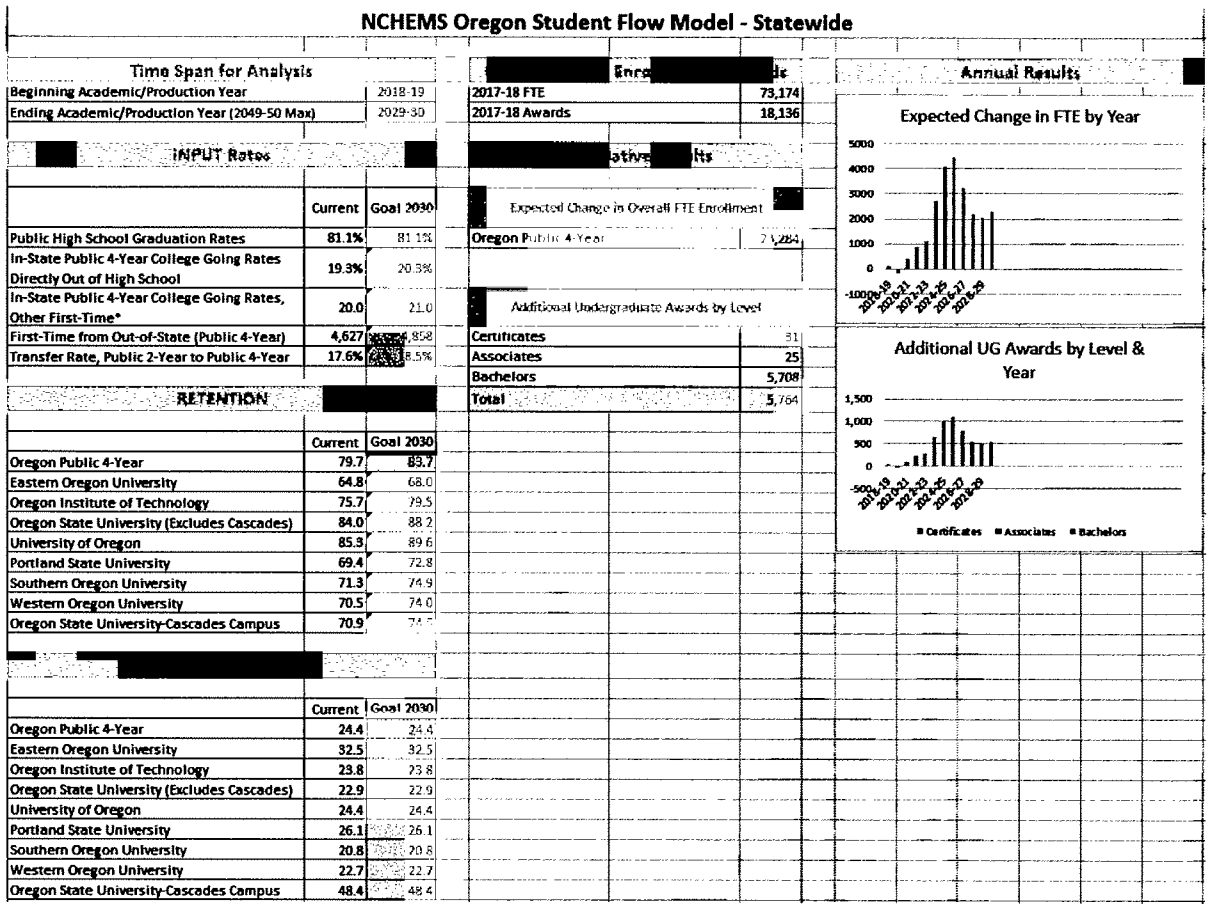
provides detail about the demographic characteristics of communities throughout the nation. While the Census Bureau publishes valuable tables drawn from the ACS on its website, often the details that are most valuable to painting a picture of prevailing conditions and trends requires accessing more detailed data from the Public Use Microdata Sample, which NCHEMS regularly employs to help inform strategic decisions at the state and local levels.

In addition to these publicly available sources, NCHEMS holds a license to use EMSI data, which gives it access to important information otherwise unavailable, especially data related to job postings information and the career trajectories of alumni of institutions, including those in Vermont. (EMSI scrapes these data from websites and curates them.)

NCHEMS will also rely on data posted online by Vermont state agencies, or requested from them if they are not otherwise available. Some of these data are described in the section on project activities, but at this early stage, we anticipate seeking data about the county-of-origin of students attending VSC and UVM institutions, section size distributions, important student characteristics such as first-generation status and family income, financial aid awards, and official state data on demographic projections and occupational demand (though in the absence of such "official" data, NCHEMS has other sources it may substitute). Other requests may become necessary as the work proceeds.

These data and others will populate at least two models that NCHEMS will use for the project.

A. Student Flow. Designed to estimate the number of additional residents with postsecondary credentials needed to meet attainment goals, this model allows users to assess how changes in student enrollment patterns and completion rates will affect a state's progress toward its attainment goal. In its default state, the model includes estimated data on population trends that, together with adjusted assumptions about the rate at which students enroll and are retained, can also produce estimates of the likely enrollment of students. These features will be helpful in assessing the vulnerability of institutions to demographic change, in planning for how the state can continue making progress in raising its attainment levels, and in how to make sound investments that will pay off under these conditions. Below is a screenshot of that model, which NCHEMS developed and used to inform a capital strategic planning project for the State of Oregon last year. The yellow-highlighted cells are all adjustable, with adjustments yielding estimates for enrollments and credentials awarded.



NCHEMS Oregon Student Flow Model - Statewide

Time Span for Analysis	
Beginning Academic/Production Year	2018-19
Ending Academic/Production Year (2049-50 Max)	2029-30

	2017-18 FTE	73,174
	2017-18 Awards	18,136

INPUT Rates

	Current	Goal 2030
Public High School Graduation Rates	81.1%	81.1%
In-State Public 4-Year College Going Rates Directly Out of High School	19.3%	20.3%
In-State Public 4-Year College Going Rates, Other First-Time*	20.0	21.0
First-Time from Out-of-State (Public 4-Year)	4,627	4,858
Transfer Rate, Public 2-Year to Public 4-Year	17.6%	18.5%

RETENTION

	Current	Goal 2030
Oregon Public 4-Year	79.7	83.7
Eastern Oregon University	64.8	68.0
Oregon Institute of Technology	75.7	79.5
Oregon State University (Excludes Cascades)	84.0	88.2
University of Oregon	85.3	89.6
Portland State University	69.4	72.8
Southern Oregon University	71.3	74.9
Western Oregon University	70.5	74.0
Oregon State University-Cascades Campus	70.9	74.5

	Current	Goal 2030
Oregon Public 4-Year	24.4	24.4
Eastern Oregon University	32.5	32.5
Oregon Institute of Technology	23.8	23.8
Oregon State University (Excludes Cascades)	22.9	22.9
University of Oregon	24.4	24.4
Portland State University	26.1	26.1
Southern Oregon University	20.8	20.8
Western Oregon University	22.7	22.7
Oregon State University-Cascades Campus	48.4	48.4

Expected Change in Overall FTE Enrollment

Oregon Public 4-Year	71,284

Additional Undergraduate Awards by Level

Certificates	31
Associates	25
Bachelors	5,708
Total	5,764

Annual Results

B. COVID-19 Impact Model. NCHEMS designed this model for SHEEO with funding support from the Bill and Melinda Gates Foundation and SHEEO released it on July 6, 2020 at https://sheeo.org/modeling-the-impacts-of-covid-19-on-public-institutions-white-paper-and-excel-tool/. Using publicly available data, this model provides estimates of the likely impact of pandemic-related changes in enrollment and funding on public institutions in FY21 at the state/sector level. NCHEMS can adapt the output of the model to provide insights at the institutional level for Vermont public institutions. A screenshot showing most of the model outputs for an unnamed state (described in the white paper provided along with the model at the link above) is included as Appendix B.

6. References

The following individuals are knowledgeable about NCHEMS work in areas related to that being proposed.

University of Alaska System

NCHEMS has advised the UA System on a variety of topics as it struggled with the issue of how to serve its students and the State of Alaska with severely diminished resources:

- Issues of governance. The allocation of decision authority among the Board, System President, and campus Chancellors
- Alternative approaches to delivery of educational services
- Costs of the UA System vis-à-vis those of other systems. Campus costs versus system office costs
- Equity of funding between the campuses.

Michelle Rizk, Acting President
Email: marizk@alaska.edu
Office phone: 907-450-8187
Cell phone: 907-322-9625

Connecticut State College and University System

In response to severe financial constraints, the CSCU Board made the decision to merge the 12 community colleges in the system into a single college. NCHEMS has advised the President's Office on matters of

- Organizing for the delivery of education programs to students in all parts of the state
- Staffing
- Transitioning to accreditation of a single institution

Mark Ojakian, President
Email: mojakian@commnet.edu
Office phone: 860-723-0011

Alice Pritchard, Chief of Staff
Email: APritchard@commnet.edu
Cell phone: 860-985-6191

Pennsylvania State System for Higher Education

NCHEMS undertook a broad System review that addressed issues of

- Financial sustainability of (particularly the more rural) institutions in the state
- Governance—allocation of decision authority among Board, Chancellor's Office, local advisory boards, and campus presidents
- Alternative modes of program delivery—how to provide needed services to students in all parts of the state

Lois Johnson, Vice-Chancellor for Administration and Finance
Email: ljohnson@passhe.edu
Office phone: 717-720-4122

Utah Higher Education Strategic Planning Commission

NCHEMS provided all staff support to the Commission including:

- Conducting environmental scan analyses
- Conducting analyses of costs associated with serving a rapidly growing state population—how to serve more students within the limits of constrained resources.
- Developed recommendations regarding
    - Changing the governance structure for higher education in the state
    - Approaches to allocation of resources
    - Alternative modes of educational delivery

Senator Ann Millner, Co-Chair of the Commission
Chair, Senate Education Committee
Email: amillner@le.utah.gov
Office phone: 801-900-3897
Cell phone: 801-6441952

Louisiana Board of Regents / Louisiana Community and Technical College System

NCHEMS developed a set of recommendations regarding steps the LCTCS should take in the face of reduced funding and the impact of COVID-19. The recommendations included:

- Allocation of functions between the LCTCS System Office and campuses
- Policy changes at the levels of:
    - The State's Legislature
    - The Board of Regents
    - The Board of the LCTCS

- Changes to the methods by which state resources are allocated

Kim Hunter-Reed, Commissioner of Higher Education
Email: kim.reed@laregents.edu
Office phone: 225-342-4253
Cell phone: 225-916-1066

Monty Sullivan, Chancellor of the LCTCS
Email: msullivan@lctcs.edu
Office phone: 504-256-2124
Cell phone 225-200-8215

7. Pricing

NCHEMS will perform the work outlined above for a total price of $249,350, inclusive of all costs except travel. The table below provides details about the cost structure of the project, with anticipated costs and effort of the individuals named in the proposal specified. The other analytical and support staff category captures aggregated costs anticipated for work performed by two or more additional NCHEMS staff members who will assist with data analysis, preparation of slides and other materials, and other tasks. NCHEMS' billing rates for staff are inclusive of indirect costs. If it is necessary for us to break out our overhead costs specifically, we can provide that disaggregated information.

The budget presumes that there will be no on-site work due to the pandemic. If the situation changes and we mutually agree that on-site presence is both necessary and safe, this budget is sufficient to cover staff time for that purpose. Therefore, travel costs are not included in the above total budget amount specified above, and any travel that becomes necessary would be in addition to that amount. Because NCHEMS believes that some conversations are most productive in a face-to-face setting, we have optimistically included a separate line in the budget for travel expenses sufficient to support the participation of two staff members in the stakeholder engagement meetings in Phase II and to present the second interim report and the final report to the Steering Committee.

Proposed Budget

	Hourly Rate	Hours	Total
Total of Salaries, Benefits, and Indirect Costs			$249,350
Travel			$10,000
Total with Travel			

Appendix A. Resumes of Key Project Team Members

Brian T. Prescott

Professional experience

2016 – Present

Vice President (previously Associate Vice President), National Center for Higher Education Management Systems (NCHEMS)

2015 – 2016

Strategy Director for Data Initiatives and Partnerships, Association for Institutional Research (AIR)

2004 – 2015

Director of Policy Research (previously Senior Research Analyst and Research Associate), Western Interstate Commission for Higher Education (WICHE)

Also served:
Graduate Assistant, University of Virginia
Residence Life Coordinator, Lehigh University

Consulting and Service Activities - Organizations

- Carlos Albizu University – Developed strategic recommendations to address long-term institutional viability and health
- State of Utah Higher Education Strategic Planning Commission – Led development of statewide strategic plan for postsecondary education (2019)
- Wyoming Educational Attainment Executive Council – Conducted data analysis, stakeholder outreach, and contributed content to a statewide postsecondary strategic plan development process (2019)
- State of Florida – Conducted a review of the funding model in use by the State University System (2019)
- Oregon Higher Education Coordinating Commission – Assisted in the development of a statewide strategic capital plan (2019)
- University of Illinois System – Provided background and justification for strategic visioning process (2018)
- University of Hawaii System – Analyzed public and institutional data to identify affordability gaps and to build a model to help inform tuition pricing strategy (2018)
- Iowa College Student Aid Commission – Provided recommendations concerning organizational strategic planning effort, including mission, activities, and funding (2018)
- West Virginia Higher Education Policy Commission – Provided recommendations for how to sustain public baccalaureate institutions and appropriately provide statewide postsecondary coordination and governance (2018)
- Pennsylvania State System of Higher Education – Conducted a strategic review of the system's governance and operations (2017)
- Southern Regional Education Board – Provided analytical support for a report on affordability in Georgia (2017)

- State of Oregon – Developed a model for distributing state-funded grant aid and estimated costs and impact (2007)
- Education Commission of the States, State Financial Aid Advisory Group and Remediation Measurement Advisory Group
- Association for the Study of Higher Education (ASHE), Co-Chair, ASHE-WICHE Collaborative on Connecting Research and Policy (2014-15)
- National Association for College Admission Counseling, Member, Board of Directors (2012-2014)
- National Postsecondary Education Cooperative (2009-2012)
- National Center for Public Policy and Higher Education, Associate's Program (2005-06)

Publications (citations on request)
Numerous reports and articles concerning strategic issues in postsecondary education, especially related to financial aid, demographic changes, and the like.

Presentations:
Over 100 presentations offered. Sample of audiences:

- State Higher Education Executive Officers national meetings
- Association for Institutional Research
- National Association of College Admission Counseling
- National Council for State Directors of Community Colleges
- National Conference of State Legislatures
- Education Commission of the States
- National Association of State Student Grant and Aid Programs
- Statewide higher education agencies (e.g., University of Hawaii System, Colorado Commission on Higher Education, etc.)
- Testimony before various legislative committees and commissions

Education

Ph. D., The University of Virginia, Charlottesville, VA
M.A, The University of Iowa, Iowa City, IA
A.B., The College of William and Mary, Williamsburg, VA

Contact Information

NCHEMS, 3035 Center Green Drive, Suite 150, Boulder, CO 80301
Voice: 303.497.0354 Email: brian@nchems.org

Gina Johnson

Professional experience

2019-Present

Senior Associate, National Center for Higher Education Management Systems (NCHEMS)

2015-2019

Assistant Executive Director for Partnerships & Membership (previously, Strategy Director for IR Capacity Initiatives), Association for Institutional Research (AIR)

2013-2015

Executive Director of Institutional Research & Analysis (previously, Director of Institutional Research & Analysis; previously Director of Institutional Effectiveness at Morgridge College of Education), University of Denver

2011-2013

Principal Analyst, University of California-Merced

Also served:
Graduate Research Assistant, University of Minnesota
Data Analyst and Research Associate, Midwestern Higher Education Compact (MHEC)
Faculty Development Coordinator and Assistant Professor, Brown College

Service Activities

- Member, NACUBO Integrating Analytics Advisory Committee
- Editorial Board Member, New Directions for Institutional Research
- Member, University of Denver Executive Committee of the Transformative Directions Advisory Committee
- Co-chair, University of Denver Task Force on Student Access and Success
- Member, University of Denver Working Group on the Status of Faculty and Staff of Color
- Member, University of Denver Campus Climate for Students Working Group
- Administrative representative on University of Denver Sustainability Council
- Volunteer staff advisor to UC Merced Psychology Club
- UC Merced Staff Assembly representative to Chancellor's Advisory Committee on Sustainability
- Volunteer instructor for UC Merced USTU 010 First Year Success course
- Staff representative to UC Merced Student Fee Advisory Committee

Publications (citations on request)

Multiple articles and chapters in journals, including New Directions for Institutional Research and Change Magazine; multiple research papers and policy briefs

Presentations

Over 60 presentations and workshops given to higher education organizations, particularly related to enhancing data-informed decision making through collaboration

Education

Ph.D. and M.A., University of Minnesota, Twin Cities
B.S. Teaching, Winona State University

Contact Information

NCHEMS, 3035 Center Green Drive, Suite 150, Boulder, CO 80301
Phone: 303.497.0307 Email: gina@nchems.org

Sally M. Johnstone

Professional experience

2016 – Present

President, National Center for Higher Education Management Systems (NCHEMS)
Executive Director, Foundation for Student Success (FSSawards.org)

2011 – 2016

Vice President Academic Advancement, Western Governors University, a private, not-for-profit, on-line, adult-serving institution with over 100,000 students in 2018

2006 – 2011

Provost and Vice President for Academic Affairs, Winona State University
(a comprehensive university within the Minnesota State College and University system, enrollment ~9,000 students, and multiple collective bargaining units)

1989 - 2006

Executive Director, Western Cooperative for Educational Telecommunications (WCET) at the Western Interstate Commission for Higher Education (WICHE)

Also served:
Director, Center for Instructional Telecommunications, University of Maryland University College
Assistant Dean, Undergraduate Faculty, University of Maryland University College
Faculty, Psychology, University of Maryland University College
Lecturer (Psychology), European Division, University of Maryland, Heidelberg, Germany
Instructor, Department of Psychology, Radford College
Instructor, Social Sciences Division, New River Community College

Consulting and Service Activities - Organizations

- UNESCO appointed writer for Communiqué of the 2009 World Conference on Higher Education setting program goals for the next decade (served with two other people from France and Kenya)
- North American Delegate to the United Nations Educational, Scientific, Cultural Organization (UNESCO)'s Planning Committee for the 2009 World Conference on Higher Education
- Member of the Council on Academic Management for the eArmyU
- Connecticut State Universities and Colleges, University of Alaska, Iowa Board of Regents, Tennessee Board of Regents, California Polytechnic University, Pomona, University of California, Santa Cruz, New School University, NY, UNESCO, Ohio Learning Network, Ford Foundation, National Science Foundation, Kentucky Council on Higher Education, California State University, University System of Georgia, Old Dominion University, California Higher Education Policy Center, California State University - Long Beach.
- Peer reviewer for North Central Higher Learning Commission (NCA), Western Association of Schools and Colleges (WASC), Middle States Commission on Higher

Education (MSCHE), and the New England Association of Schools and Colleges (NECHE)

Publications (citations on request)
Seven Books/Reports/ Book chapters, and Articles (30+)

Presentations:

Over 100 presentations offered. Sample of organizations:

- National Congress of State Legislators (NCSL),
- Texas Higher Education Coordinating Board,
- National Association for System Heads (NASH)
- Council of Higher Education Accreditation (CHEA),
- Florida Virtual Campus,
- UNESCO,
- Inter American University,
- American Association of University Women,
- American Council on Higher Education (AAHE),
- Association of Specialized and Professional Accreditors,
- International Association of Universities (IAU),
- National Advisory Committee for Institutional Quality and Integrity,
- Southern Regional Education Board,
- New America Foundation,
- American Council of Education (ACE),
- Missouri Community College Association,
- EDUCAUSE,
- Education Commission of the States,
- Western Academic Leadership Forum,
- Academy for State Policy Leadership in Higher Education,
- Kauffman Foundation,
- Plus dozens of colleges, universities, and state higher education boards

Education

Ph.D., University of North Carolina, Chapel Hill, NC
M.S. & B.S., Virginia Polytechnic Institute, Blacksburg, VA

Contact Information

NCHEMS, 3035 Center Green Drive, Suite 150, Boulder, CO 80301
Voice: 303.497.0394 Email: sally@nchems.org

Dennis P. Jones

Professional experience

1969-Present

President Emeritus (previously President, Vice President for Planning and Evaluation, Associate Director, Assistant Program Director, Staff Analyst), National Center for Higher Education Management Systems (NCHEMS)

1961-1969

Assistant Director of the Planning Office (previously Assistant to the Business Manager, Executive Secretary to the Department of Physics), Rensselaer Polytechnic Institute

Selected Consulting and Service Activities

- State of Utah Higher Education Strategic Planning Commission – Led development of statewide strategic plan for postsecondary education
- Wyoming Educational Attainment Executive Council – Conducted data analysis, stakeholder outreach, and contributed content to a statewide postsecondary strategic plan development process
- State of Florida – Conducted a review of the funding model in use by the State University System
- Oregon Higher Education Coordinating Commission – Assisted in the development of a statewide strategic capital plan
- University of Illinois System – Provided background and justification for strategic visioning process
- West Virginia Higher Education Policy Commission – Provided recommendations for how to sustain public baccalaureate institutions and appropriately provide statewide postsecondary coordination and governance
- University of Alaska - Undertook Board development activities and consulted with University leadership on strategic planning and strategic budgeting.
- Connecticut State College and University System - consulted on the process of combining 12 community colleges into a single institution.
- California Community College Chancellor's Office - With Sally Johnstone, managed the process that led to the creation of Calbrlight, an on-line community college designed to meet the workforce preparation needs of workers whose jobs are threatened by automation.
- Western Nebraska Community College - Analyzed data and worked with the Board to identify strategies for right-sizing the instituion.
- U.S. Secretary of Education—Member of a Finance/Productivity Working Group that made recommendations regarding implementation of Spellings Commission Report,
- Society for College and University Planning—Received Founders Award (2004) for lifetime contributions to higher education planning
- National Center for Public Policy and Higher Education, Forum on State Policy Implementation—Member and Senior Consultant,
- Western Governors University—Member of Design and Implementation Team, 1996

- California State University System—Member of the Steering Review and Oversight Committee for project on Benefits and Costs of Mediated Instruction and Distributed Learning, 1997
- U.S. Department of Education—Special study group on educational indicators, 1989 to 1991
- Listed in Who's Who in the West and Who's Who in Finance and Industry, 1990 to present
- Association for Institutional Research—Member
- Association for the Study of Higher Education
- American Association for Higher Education (AAHE)
- Advisory Panel on National Science Foundation University Science Statistics
- American Council on Education/National Center for Education Statistics (NCES) Panel on Higher Education Statistics—Member, 1977 and subsequent years

Publications (citations on request) **and Presentations**

Extensive publications and presentations covering the creation of information for use in strategic decision-making, budgeting and finance, and policymaking in higher education

Education

M.S. and B.S., Rensselaer Polytechnic Institute

Contact Information

NCHEMS, 3035 Center Green Drive, Suite 150, Boulder, CO 80301
Phone: 303.497.0301 Email: dennis@nchems.org

Rachel Christeson

Professional experience

2015-Present

Research Associate, National Center for Higher Education Management Systems (NCHEMS)

2013-2015

Research Analyst, Aurora Public Schools

2009-2011

Director of Institutional Research (previously Research Analyst), Colorado Community College System

2008-2009

Assistant Director of Admissions/Data Management, Metropolitan State University of Denver

Affiliations and Service Activities

- Association for the Study of Higher Education
- American Evaluation Association
- Association for Institutional Research
- Colorado Association of School Evaluators
- Rocky Mountain Association for Institutional Research
- Colorado Association of Planners and Institutional Researchers
- Colorado Data Advisory Group
- CCCS Institutional Research Advisory Group
- CCCS Banner Operational Leadership Team / Banner Integrity Group
- Banner Users of the Mountain States
- Metropolitan State University of Denver Strategic Reporting Team

Publications (citations on request)

Articles in the journals Higher Education of Social Science and Community College Journal of Research and Practice

Education

Ph.D., University of Northern Colorado
M.A., University of Denver
B.S., Rochester Institute of Technology

Contact Information

NCHEMS, 3035 Center Green Drive, Suite 150, Boulder, CO 80301
Phone: 303.497.0350 Email: rachel@nchems.org

Appendix B. Screenshot of COVID-19 Impact Model Outputs

The figure below is a screenshot of the principal outputs of the COVID-19 Impact model for a state that was not publicly identified in the white paper released to accompany the model itself. It is included here to provide a sense of the kind of analytical results that the model generates. Key assumptions about shifts in enrollment patterns at and financing the sector level, which drive these results, are described in that white paper. The model and the white paper are available at https://sheeo.org/modeling-the-impacts-of-covid-19-on-public-institutions-white-paper-and-excel-tool/.

NCHEMS

NCHEMS COVID-19 Impact Model

State B

		FY18/FY20			FY21			Difference			Percent Difference		
		Research	Four-Year Comp.	Two-Year	Research	Four-Year Comp.	Two-Year	Research	Four-Year Comp.	Two-Year	Research	Four-Year Comp.	Two-Year
Enrollment	Undergraduate FTE	102,299	119,713	83,395	102,299	118,535	84,808	0	-1,178	1,413	0.0%	-1.0%	1.7%
	Total FTE	126,516	134,186	83,395	127,727	132,284	84,808	1,211	-1,902	1,413	1.0%	-1.4%	1.7%
Revenue	Federal Stimulus				$41,144,789	$62,795,570	$38,977,203	$41,144,789	$62,795,570	$38,977,203			
	State Appropriations	$406,008,374	$520,254,049	$237,120,931	$406,008,374	$520,254,049	$237,120,931	$0	$0	$0	0.0%	0.0%	0.0%
	Local Appropriations	$0	$0	$123,398,895	$0	$0	$123,398,895	$0	$0	$0	N/A	N/A	0.0%
	Revenue from T&F + Grants Used to Pay T&F	$2,614,152,475	$1,924,197,568	$529,415,169	$2,412,706,942	$1,819,481,580	$549,923,117	-$201,445,533	-$104,715,987	$20,507,948	-7.7%	-5.4%	3.9%
	[redacted]			$889,934,[redacted]	[redacted]105	$2,402,531,200	$9[redacted]	$160,300,745	$41,920,417	$59,485,151	-5.3%	-1.7%	6.7%
	Auxiliaries	$515,786,908	$566,061,672	$29,531,072	$464,208,217	$509,455,505	$28,054,518	-$51,578,691	-$56,606,167	-$1,476,554	-10.0%	-10.0%	-5.0%
	[redacted]			$919,466,[redacted]	[redacted]322	$2,911,986,704	$97[redacted]	-$211,879,435	-$98,526,584	$58,008,598	-6.0%	-3.3%	6.3%
Revenue per FTE	Federal Stimulus				$322	$475	$460	$322	$475	$460			
	State Appropriations	$3,209	$3,877	$2,843	$3,179	$3,933	$2,796	-$30	$56	-$47			
	Local Appropriations	$0	$0	$1,480	$0	$0	$1,455	$0	$0	-$25			
	Revenue from T&F + Grants Used to Pay T&F	$20,663	$14,340	$6,348	$18,890	$13,754	$6,484	-$1,773	-$585	$136			
	Total Instruction-Related Revenue	$23,872	$18,217	$10,671	$22,390	$18,162	$11,195	-$1,481	-$55	$524			
	Auxiliaries	$4,077	$4,218	$354	$3,634	$3,851	$331	-$442	-$367	-$23			
	Total Instruction-Related Revenue + Auxiliaries	$27,949	$22,435	$11,025	$26,025	$22,013	$11,526	$0	$0	$0			
Expenditures	Instruction-Related Expenses	$2,484,815,719	$1,934,685,579	$771,469,210	$2,319,633,657	$1,857,118,240	$820,140,769	-$165,182,061	-$77,767,339	$48,671,559	-6.6%	-4.0%	6.3%
	Student Services	$355,484,373	$282,003,465	$123,214,472	$338,966,167	$277,428,915	$130,988,003	-$16,518,206	-$4,574,549	$7,773,532	-4.6%	-1.6%	6.3%
	Auxiliaries	$488,875,041	$447,819,314	$29,837,934	$470,292,059	$440,500,035	$31,720,392	-$18,582,982	-$7,319,279	$1,882,458	-3.8%	-1.6%	6.3%
	Plant O&M Allocated to Instruction & Auxiliaries	$116,623,762	$130,829,867	$46,810,012	$110,429,434	$129,000,047	$49,763,229	-$6,194,327	-$1,829,820	$2,953,217	-5.3%	-1.4%	6.3%
	Total Instruction-Related Expenses + Auxiliaries	$3,445,798,895	$2,795,538,225	$971,331,627	$3,239,321,318	$2,704,047,238	$1,032,612,394	-$206,477,577	-$91,490,987	$61,280,767	-6.0%	-3.3%	6.3%
Expenditures per FTE	Instruction-Related Expenses	$19,640	$14,419	$9,251	$18,161	$14,039	$9,671	-$1,479	-$381	$420			
	Student Services	$2,810	$2,102	$1,477	$2,654	$2,097	$1,545	-$156	-$4	$67			
	Auxiliaries	$3,864	$3,337	$358	$3,682	$3,330	$374	-$182	-$7	$16			
	Plant O&M Allocated to Instruction & Auxiliaries	$922	$975	$561	$865	$975	$587	-$57	$0	$25			
	Total Instruction-Related Expenses + Auxiliaries	$27,236	$20,833	$11,647	$25,361	$20,441	$12,176	-$1,875	-$392	$528			
Awards	Bachelor's Degrees	23,675	23,224	0	21,950	22,511	0	-1,725	-713	0	-7.3%	-3.1%	NA
	Associate's Degrees	47	2,775	14,076	44	2,697	15,173	-3	-78	1,097	-7.3%	-2.8%	7.8%
	Undergraduate Certificates	1,625	570	3,143	1,507	554	3,434	-118	-16	291	-7.3%	-2.7%	9.3%
	Total Undergraduate Awards	25,347	26,569	17,219	23,501	25,762	18,607	-1,846	-807	1,388	-7.3%	-3.0%	8.1%