



UNIVERSITY of VIRGINIA
OFFICE OF THE PRESIDENT

October 1, 2018

The Honorable Ralph S. Northam, Governor
The Honorable Thomas K. Norment, Jr., Co-Chairman, Senate Finance Committee
The Honorable Emmett W. Hanger, Jr., Co-Chairman, Senate Finance Committee
The Honorable S. Chris Jones, Chairman, House Appropriations Committee

Dear Governor Northam, Senator Norment, Senator Hanger, and Delegate Jones:

On behalf of my colleagues at Virginia Tech and Virginia State University, I am pleased to transmit to you our recommendations regarding the revitalization of rural Virginia.

Item 193 of Chapter 2, the 2018 Appropriations Act, directs:

O. The President of the University of Virginia shall lead a collaborative evaluation between the University of Virginia, Virginia Tech, and Virginia State University, with assistance from other institutions of higher education and organizations with expertise in this area, to analyze the problems facing rural Virginia and develop strategic recommendations for improvement. Such recommendations shall be reported to the Governor and the Chairmen of the Senate Finance and House Appropriations Committees by October 1, 2018.

Pursuant to the budget language, then-President Teresa Sullivan convened a team of faculty and staff from across Virginia. Over the course of the summer, the working group initiated a series of conversations with thought leaders from across the Commonwealth to better understand the broad and interrelated challenges facing Virginia's rural areas. Through its analysis, the group examined the ways in which Virginia higher education currently works to address the challenges faced by rural Virginia, and how the Commonwealth's colleges and universities could act as a catalyst to promote greater opportunities in education, health care, and job creation for the citizens of these regions.

As you will see, the report highlights areas of near-term opportunity as well as those that require further research and analysis. Further, the report proposes a commitment by higher education to convene an ongoing working group of partners from across public, private and non-profit sectors to develop a strategic framework for investing in shared prosperity across Virginia.

We believe the attached recommendations are just the beginning of a deeper, thoughtful conversation about how higher education, in conjunction with other state, local and private entities, can and should help address the challenges facing rural Virginia. We look forward to

your ideas and comments, and the opportunity to meet with you for further discussion on this important issue.

Best,

A handwritten signature in black ink, appearing to read 'James E. Ryan', written over the printed name below.

James E. Ryan
President

c: Timothy D. Sands, President
Virginia Tech

Makola M. Abdullah, President
Virginia State University

Moving Rural Virginia Forward: Ideas for Action and Investment

Introduction

When higher education institutions were asked to take a fresh look at rural Virginia, it was with full awareness of the scope and scale of activity already underway in this area. The main document that follows looks broadly at challenges common to all of Virginia's rural regions, identifies initiatives underway in key areas, and explores ideas for action and policy. A companion appendix specifically catalogs the ways in which Virginia higher education institutions are responding to some of these challenges and areas of opportunities to strengthen that response.

The complex challenges of rural Virginia cannot be answered by one set of institutions or in one paper. This was clearly recognized in this process through input from thought leaders and stakeholders from around the Commonwealth. With that in mind, this paper is offered as an opportunity to rededicate ourselves to old partnerships and develop new ones to move rural Virginia forward.

The Landscape

Virginia's urban-rural divisions are long-standing. Since the turn of the 21st century, and particularly since the end of the Great Recession, public discourse in Virginia has increasingly focused on the disparities between the Commonwealth's urban, suburban and rural communities. Recent elections and national media have amplified the growing divide between places that are economic winners and losers: urban and rural, dense and less developed, and the broad continuum of places in between.

The gap between the socioeconomic fortunes in Virginia's metropolitan "Golden Crescent" (the arc from Northern Virginia to Hampton Roads with Richmond in between) and what has been deemed as the "Rural Horseshoe" (from Virginia's Eastern shore to the west across Southside and Southwest Virginia, and up the Shenandoah Valley), is quantifiable and growing. We are seeing not just divergent economic outcomes, but also fundamentally different and disconnected economic bases. The economic divide has been coupled with increasingly difficult communication challenges in developing approaches to economic and community development. To address rural Virginia's multifaceted socioeconomic challenges, state policymakers passed legislation establishing, *"a collaborative evaluation between the University of Virginia, Virginia Tech, and Virginia State University, with assistance from other institutions of higher education and organizations with expertise in this area, to analyze the problems facing rural Virginia and develop strategic recommendations for improvement."*

In response to this legislative charge, a team of faculty from those institutions was assembled and initiated a series of exploratory conversations with thought leaders from across Virginia. The research team utilized a *qualitative research* process that highlighted the broad challenges facing Virginia's rural areas, reviewed initiatives currently underway, and considered actionable ideas and policy suggestions. This report focuses on both areas of near-term opportunity as well as those that require further and fuller research and analysis.

Additionally, this report proposes a commitment by higher education to convene an ongoing working group of partners from across public, private and non-profit sectors to develop a strategic framework for investing in shared prosperity across Virginia and to craft specific policy solutions within the local context of the rural communities themselves. Higher education institutions can be partners and advocates in working together to build a stronger, more vibrant Virginia.

The Rural Challenge

On balance, Virginia's rural localities trail their metropolitan-area counterparts on key measures of community well-being, including population growth, employment growth, wage growth, new business formation, broadband access, educational attainment, and access to health care and other services. Many of these issues intersect, for example, with access to broadband shaping educational outcomes, or availability of healthcare impacting rates of entrepreneurship.

The population pressures facing rural communities are particularly serious. In 2017, 64 of Virginia's 95 counties – most of them rural – saw more deaths than births, and regions such as Southwest and Southside Virginia are in the midst of significant out-migration as residents venture elsewhere to seek jobs and economic opportunities. Population growth within the Commonwealth has been concentrated in Virginia's three largest metro areas, while the predominantly rural Eastern Shore, Northern Neck, Southside and Southwest Virginia regions have all experienced significant population decline¹. While many rural municipalities have seen jobs decline or stagnate, the Richmond, Hampton Roads, and Northern Virginia regions - which are home to 69 percent of all Virginians - now contain 73 percent of all jobs in the Commonwealth².

Overall, Virginia ranks sixth-highest among states in the percentage of the working-age population who hold a degree or credential, at approximately 51%. In the state's rural areas, only 27% of the population have an associate degree or higher³. The educational attainment deficit in rural Virginia is of critical concern considering that 99% of the jobs (11.5 million) created nationally since the Great Recession required more than a high school diploma, according to the Georgetown Center on Education and the Workforce⁴.

Despite the prevailing economic winds, there are substantial assets and bright spots among rural Virginia communities. For instance, parts of the Middle Peninsula, the New River Valley, and the Shenandoah Valley regions are experiencing modest (or better) economic and population growth comparable to the larger metro areas. A number of rural county school systems, serving mostly low-to-moderate income students, have standardized test-score performance exceeding that of similarly low-to-moderate income city school districts. Many rural communities now have air and water quality levels that are demonstrably better than metropolitan areas. Counter to the universal urban prosperity narrative, smaller cities such as Petersburg, Bristol, Hopewell and Emporia have scored worse than nearby rural communities on measures of fiscal distress, and swaths of Virginia's larger cities such as Hampton, Norfolk, Newport News, and Richmond also face high levels of poverty, crime, health disparities and struggling educational systems.

These interrelated challenges will require broad-based, holistic, long-term, unconventional, and innovative approaches from the public and private sectors. Stand-alone strategies that market rural places to attract companies or tourists are insufficient for generating the kinds of changes to rebuild rural prosperity. Issues of educational quality, physical and mental health, and economic opportunity are inextricably intertwined, and rural Virginia should not be viewed in isolation of the State's urban and

¹ Data from UVA Weldon Cooper Center for Public Service. Accessible at <https://news.virginia.edu/content/virginias-annual-population-growth-lowest-nearly-century>

² Data from ODU 2017 State of the Commonwealth Report. Accessible at: <https://www.ceapodu.com/wp-content/uploads/2017/11/SOC-2017-FINAL.pdf>

³ Data from SCHEV January 2018 Annual Report. Accessible at: http://www.schev.edu/docs/default-source/virginia-plan/Reports-and-Updates/annualreport2017_final.pdf

⁴ Carnevale et al. 2016 "America's Divided Recovery: College Have and Have Nots." Accessible at: <https://1gyhoq479ufd3yna29x7ubjn-wpengine.netdna-ssl.com/wp-content/uploads/Americas-Divided-Recovery-web.pdf>

suburban areas. Tracking and assessing the implications of policy for shared prosperity is essential. In short, policy and programmatic responses to these challenges cannot be undertaken in isolation.

Researching Rural Virginia

Today's discussions of rural policy in Virginia are rooted in the foundation established by the Virginia Rural Prosperity Commission in 2000. The Commission undertook an in-depth study of the various facets of rural Virginia's socioeconomic dynamics. It concluded its work in 2003, leading to the launch of the Virginia Rural Center in 2004. At that time, the Virginia Economic Development Partnership (VEDP) assumed a lead role in crafting rural economic development research reports and strategies and regularly issued annual, data-informed "Rural Economic Development Strategic Plan" documents that combined applied research and policy solutions. The last of those reports was published in 2010.

Since that time, the state-level focus on rural issues has been fragmented. Over the last 10 years or so, many of the analyses, reports, and strategic plans that are data-heavy have been conducted at the regional level - when aggregated, they paint a "statewide" picture of Rural Virginia. These reports include:

- 1) The "Comprehensive Economic Development Strategy" documents regularly completed by the regional Planning District Commissions in order to comply with the funding requirements of the U.S. Economic Development Administration.
- 2) The "Stronger Economies Together" initiative, managed by Virginia Cooperative Extension and funded by the U.S. Dept. of Agriculture, afforded Virginia's rural regions (and sub-regions) an opportunity to generate a number of data-driven, locally-deployed reports.
- 3) The GO Virginia regional profiles provide a level of comprehensive data on the nine respective regional groupings of cities and counties.
- 4) VEDP's Community Profiles provide socioeconomic snapshots of each county and city in the state, as well as statistics on various regional groupings of those localities.
- 5) The Virginia Department of Housing and Community Development's "Building Collaborative Communities" project (2012-17) generated a number of regional economic and industry studies, many of which focused on rural areas; DHCD's Commission on Local Government has generated a variety of data-intensive reports on the financial health of Virginia localities, including an annual fiscal stress analysis.
- 6) The Virginia Department of Health issued a data-driven "State Rural Health Plan" in 2013. The Department once oversaw the regular production of regional health reports via the health planning agencies, but those were eliminated during the state budget cuts of FY 2009-11. The agency currently collects and publishes data on local health departments and regional health districts.
- 7) UVA Weldon Cooper Center produces Population Studies and manages the StatChat project, both of which produce useful data that can be extracted and extrapolated for rural areas.
- 8) The Appalachian Regional Commission and Virginia Tobacco Region Revitalization Commission often produce research-based operational and planning documents to guide their investments in eligible rural regions. They have also commissioned a number of studies over the past decades.

The sheer number of these reports suggests that information in general is not the primary problem. What is needed is real-time, ongoing information on common, shared and pressing challenges and barriers to shared prosperity that these studies and others identify. To that end, **we recommend the creation of a new statewide “Rural Prosperity Dashboard” or “Rural Prosperity Index” as a data-informed strategic tool that can be tracked and updated over time to measure progress for policy and practice.**

Policy and Strategy Recommendations

The aforementioned working group will be the next step in advancing the public policy ideas generated by this collaborative inter-university review. In that spirit of partnership, the following preliminary policy recommendations should be considered as a **springboard for sparking additional in-depth conversations** between the working group and policymakers, higher education leaders, government agency partners, the business community, and engaged citizens statewide:

1. ***Investing in Civic Innovation & Public Management.*** An historic strength of rural places has been the strong social connections, active community life, and strong civic and community organizations and activities. Analysis following the recent presidential election highlights the increasing polarization along the lines of geography, ethnicity, educational level, and economic status. This includes an increasing physical and psychological distance between the cultures and economies of our urban and rural regions. At the same time, there is an increasing suspicion of, and disengagement with, public and private institutions, including traditional bulwarks of community such as churches, companies, and governments.
 - a. **Launch Regional Civic Innovation Funds and Rural Policy Competitions.** These funds would be distributed as smaller project-focused grants, matched by contributions from higher education and the private sector, to support creative approaches to addressing rural policy and governance challenges and opportunities. Emphasis would be on idea implementation and strengthening connections between colleges and universities and rural communities beyond the campus community. Faculty teams from colleges and universities, along with public sector partners, would propose solutions to particular challenges.
 - b. **Comprehensive Review of State Funding Formulas and Allocations.** This would entail analyzing all funding formulas and allocation methods embedded in the Code of Virginia and subsequent regulations to ensure adequate resources are available to account for shifts in population and other socioeconomic changes over time.
 - c. **Strengthen capacity of Regional Intergovernmental and Quasi-governmental Entities.** Provide regional agencies - such as Planning District Commissions, Soil and Water Conservation Districts, Workforce Boards - with additional resources to provide consulting, convening, and grant-writing assistance to rural localities.
 - d. **Review the outcomes of municipal reversions, attempted consolidations and programs incentivizing shared services or revenue sharing.** Assessing the progress of prior rounds of reversions and consolidations and other programs will help objectively determine the short and long-term costs and benefits to local governments in rural areas.
2. ***Investing in Entrepreneurship & Innovation-led Economic Development.*** The sources of strength and differentiation for rural communities has often included a strong, attractive, vibrant downtown; a thriving agriculture and natural resources sector; and locally owned and operated small businesses with ties to their community. For many reasons tied to increased globalization and changing consumption patterns and personified by companies such as Amazon and Walmart, rural America has struggled to maintain its historic strengths. There are many thriving rural towns in Virginia, but

also many communities in need of greater support for more vibrant downtowns, a more sustainable agriculture and natural resources climate for existing and new farmers as well as food and forest related enterprise, and for small business start-up and growth.

- a. **Expand the capacity of and funding for rural-serving Small Business Development Centers.** SBDCs provide technical support to entrepreneurs who aspire to open small businesses, and make them aware of available sources of low-interest and “patient” capital. They also work with existing small businesses to help them stabilize and grow their enterprises and collaborate with other entrepreneur support organizations and programs. The focus for funding should be enhanced services and technical assistance for entrepreneurs rather than on facilities, administrative expenses or incubator buildings.
 - b. **Provide coordinated support for and funding to federally-certified Community Development Financial Institutions.** CDFIs balance mission-driven lending with bottom-line business concerns in order to expand available lending to rural entrepreneurs and community developers.
 - c. **Create a Statewide Rural Broadband Policy to prioritize new investment and technology deployment.** Specifically, the Commonwealth should make policy changes to reduce the cost of broadband deployment and significantly increase financial resources to incentivize the extension of broadband infrastructure to unserved areas. Extending broadband access in rural areas should pay targeted attention to providing “last-mile” connections for local police, fire, schools, hospitals, other community service providers, businesses, and citizens.
 - d. **Continue to support GO Virginia, including regional councils, and explore opportunities to increase funding availability and to reduce the contribution burdens on rural local government.** GO Virginia represents a significant targeted effort to drive public-private sector investment and high wage job growth in regions across the Commonwealth. The program should continue to be supported at least at current levels. For rural localities to fully benefit, the burdens of local participation may need to be reviewed. Moreover, by the end of GO Virginia’s first three years, a comprehensive and independent assessment of the initiative’s impacts on shared prosperity should be conducted, including the extent to which funded projects have substantially focused on or benefitted more rural and under-resourced localities.
 - e. **Enhance support for agriculture-focused development and entrepreneurship.** One strategy to explore is to bolster the infrastructure and staff capacity of Virginia Cooperative Extension and the Virginia Agricultural Experiment Station. These resources can drive innovative rural economic growth through translational research and local industry development and support, especially for value-added crops, food innovations, and enterprise acceleration. In addition, VCE, VDACS, and other agriculture-support entities can enhance their support for cooperative producer arrangements and facilitate public-private investment and capacity building and technical support for cooperative ventures.
3. ***Investing in Healthcare & Telemedicine.*** Rural patients often face high rates of chronic illness including hypertension, diabetes, cancer, obesity, and heart failure — rates that exceed those of their urban counterparts. Disparities in mental health access and disproportionately high rates of substance use are prevalent in rural areas, including alcohol, tobacco and opioids. Rates of opioid-related overdose deaths in non-metro counties are 45% greater than in metro counties. Rates of newborns suffering with neonatal abstinence syndrome are higher in rural communities than urban areas. Limited high-risk obstetrical care coupled with perinatal complications and higher than expected infant mortality rates are also challenges faced in rural Virginia. Access to care for rural

patients is adversely impacted by workforce shortages and a mal-distribution of providers, high rates of uninsured status, and rural hospital closures.

- a. **Remove obstacles to telehealth.** Lessening the technical, legal, regulatory, and cost burdens to telehealth, tele-mental health, and distance-learning opportunities can improve access to care and mitigate workforce shortages.
- b. **Ensure Medicaid Parity Coverage.** Programs should provide support for evidence-based telehealth-facilitated care models in particular as Medicaid expands and ensure coverage of virtual healthcare services provided to children in schools and, as appropriate, to all Medicaid beneficiaries in homes and other settings.
- c. **Bolster the capacity of regional health and mental health systems.** An array of intergovernmental, nonprofit or quasi-governmental health and mental health agencies deliver quality community services within rural regions. These include local health departments, regional Health Districts, Federally-Qualified Health Clinics, Community Services Boards, and the like.
- d. **Update the Virginia Rural Health Plan.** The last plan was crafted in 2013. The Commonwealth should partner with higher education institutions to update and expand that document so that it emerges as an ongoing resource for implementation, information-sharing, and partnership.

4. ***Investing in Early Childhood & K-12 Education*** - Companies located in rural areas often struggle to meet their workforce needs. Declining and aging populations present challenges as employers struggle to fill open positions. Rural school systems face a number of challenges including the recruitment and retention of qualified and effective teachers and leaders (a concern in many areas across the state, not just rural areas); K-12 enrollment declines and associated school funding declines; facility and infrastructure needs; and access to STEM learning resources and technologies. Access to affordable quality childcare is also a challenge in many, more rural areas of the Commonwealth. Retaining younger workers and attracting young professionals and mid-career workers and families is also a challenge in many places.

- a. **Establish partnerships to expand early childhood education.** Collaborative efforts among local school districts, community-based nonprofits and higher education institutions can increase access to vital pre-K education, child-care services, and after-school enrichment programs in rural areas.
- b. **Provide technical assistance to private childcare providers.** Offering consulting and training support for business and family-based childcare providers can expand their capacity to offer enriched early childhood activities.
- c. **Explore options for private-public financial support for nonprofit childcare facilities, such as refundable or business tax credits.** The costs of childcare are a significant burden on rural workers and families and policy options for costs reductions should be identified, developed, and considered in a more substantive way.
- d. **Review public school funding allocations and encourage shared-services agreements.** To offset declining revenues stemming from declining enrollments, new models need to exist for rural public education to better respond to the challenges and opportunities in their regions.
- e. **Create STEM deep-teaming school systems and regional industry partners.** Regional stakeholders can work collaboratively on curriculum, experiential learning, and internships while deploying intellectual capital to assist existing companies in mature industries (ex. Agriculture, Manufacturing, IT) as well as startups in emerging sectors.

5. ***Invest in Higher Education and Workforce Development*** - Universities, regional higher education centers, and community colleges can play an important and unique role in rural economic and

workforce development. Higher education institutions can serve as neutral conveners, bringing together groups from industry, government, nonprofits and academia to discuss common interests and generate new ideas. So too can they leverage assets and expand networks to help partners gain access to information and stimulate new collaborations and partnerships. There are opportunities for universities to extend and build upon existing programs in ways that enable communities to shape activities to best meet their needs; higher education can confer with industry to understand current and future workforce demands to identify pathways for students of all ages so that they can gain the knowledge and skills needed to participate in the knowledge economy. *A companion document - "Appendix A" - immediately follows this section and further examines how the Commonwealth's higher education institutions are engaging and responding to challenges and opportunities in rural Virginia.*

- a. **Convene a Shared Prosperity Working Group to develop new rural strategies.** Higher education stakeholders can collaboratively respond to rural policy challenges versus pursuing siloed strategies. This includes responding to immediate opportunities where joint efforts can provide immediate benefits, as well as, exploring areas where long-term, deeper study is needed to design interventions with the greatest impact. The working group would engage the Virginia Rural Center and similar groups across the state to explore challenges, opportunities, and solutions.
- b. **Expand collaborations between university researchers and rural entrepreneurs.** Colleges and universities should partner with startups, established small companies, and large private industry interests on innovative public-private research initiatives and make research activities and assets more widely available in rural areas.
- c. **Increase Community College and University engagement in rural health initiatives.** Higher education institutions can conduct local and regional health assessments, lead community collaborations on public health and healthcare equity, and extend telemedicine and tele-mental health capacities in rural Virginia to alleviate overloads in overburdened rural-serving health facilities and to reduce the barriers to remotely receiving specialized healthcare.
- d. **Align Higher Education Institution facilities and program planning with rural economic and workforce development needs.** Universities can serve as economic catalysts by translating knowledge and discovery directly to the rural people and places near their campuses. Community colleges can grow their Career Pathways and In-Demand Industry Certification programs that provide adult learners with contextualized curriculum integrated with industry-specific technical training to develop essential workplace skills for jobs in targeted industries. Two-year and four-year institutions should continue to partner and improve efforts to grow the pipeline of workers in leading and emerging industry sectors including healthcare, information technology, and manufacturing.

Looking Ahead

For the economic and social well-being of *all* Virginians - urban, suburban and rural - it is important that rural Virginia has increased opportunities to flourish. The recommendations developed in this white paper are intended to serve as starting points for deeper conversations among policymakers, higher education leaders, government agency partners, the business community, and community stakeholders statewide. Higher education alone cannot solve our Commonwealth's rural challenges, but Virginia's colleges and universities stand ready to serve as partners and advocates in working together to build a stronger, more vibrant Virginia.

Rural Virginia Initiative Project Team

Initiative Chair

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Appendix A

Moving Rural Virginia Forward: Through a shared prosperity lens: Challenges and Opportunities for Higher Education

Higher education benefits people by enabling socioeconomic gains and contributing to human flourishing. Higher education institutions contribute to greater economic growth through research and human capital development. Virginia has 15 four-year public institutions, 23 community colleges, one public junior college, and numerous private institutions. Many of the Commonwealth's colleges and universities are located in rural areas, and have a long and distinguished history of contribution and stewardship to the places surrounding their campuses. This Appendix provides examples of how the Commonwealth's higher education institutions have engaged and responded to certain challenges and needs of Virginia's rural regions. As the aforementioned recommendations are considered, the examples contained within this appendix may provide additional insights into successful strategies as applied in specific communities or regions.

Virginia is home to America's second oldest institute of higher education, the College of William and Mary, and private colleges such as Hampden-Sydney and Washington and Lee were founded before the American Revolution. The founding of a number of other public and private institutions followed in the 19th century. Virginia State University and Virginia Tech are the state's two land grant universities, and jointly operate Virginia Cooperative Extension, founded with a mission to extend technical knowledge and assistance into communities across the state. The University of Virginia was the first institution in the Southern U.S. to be elected to the Association of American Universities, still the leading consortium of research universities in the nation.

In the 1990s, the Virginia Community College System (VCCS) was charged in the *Code of Virginia* to lead postsecondary workforce training through the associate degree level. Since that time, the 23 regional community colleges have built a significant network throughout the Commonwealth to help provide solutions to education and training deficits. Recent developments in state policy-making and budgeting have further amplified the ability of these vital institutions to advance those solutions. In particular, the VCCS Rural Virginia Horseshoe Initiative and expansion of pre-K education programs have been financed largely by private donations through the Virginia Foundation for Community College Education and have historically not been state priorities.

The role of higher education institutions in engaging and responding to the challenges of rural prosperity is varied and evolving. State universities have played an important role in developing responses to rural/urban challenges across recent decades.

Virginia's universities have a history in providing research on the socioeconomic conditions of rural Virginia. In the mid-20th century, the Commonwealth's official source of population and economic research shifted from a state agency to the University of Virginia (what is now the Weldon Cooper Center). Virginia Tech launched the Rural Economic Analysis Program (REAP) to provide research and analysis support for state and local officials; the program operated from the mid-1980s to mid-2000s. Both universities provided strategic and technical advice for state leaders while also supporting the work of local government and regional entities. Virginia State University and Virginia Tech, in operating Virginia Cooperative Extension, engaged specialists and agents in community, rural, agricultural, youth and, family development that supported programs and activities touching in some way every neighborhood and hamlet of the Commonwealth. The work of the UVA Weldon Cooper Center and Virginia Tech's REAP laid the groundwork for the establishment of the Virginia Rural Prosperity Commission in 2000.

Responding to the Challenge

The role of higher education institutions in engaging and responding to the challenges of rural prosperity is varied and evolving. State colleges and universities have played an important role in developing responses to rural/urban challenges across recent decades. In reviewing the landscape and crafting policy solutions, Virginia's Higher Education institutions are also examining their role in reducing these and other barriers to shared prosperity in the Commonwealth. Universities are becoming more mindful of what persists when we fail to promote and provide more accessible, affordable educational degree opportunities for students from across all economic and demographic sectors, or when we fail to effectively partner with our neighbors in local governments, the business community, and the nonprofit sector to enhance our capacity to positively affect regional economic growth.

Universities, regional higher education centers, and community colleges can play an important and unique role in rural economic and workforce development. Higher education institutions can serve as neutral conveners, bringing together groups from industry, government, non-profits and academia to discuss common interests and generate new ideas. So too can they leverage assets and expand networks to help partners gain access to information and stimulate new collaborations and partnerships. There are opportunities for universities to extend and build upon existing programs in ways that enable communities to shape activities to best meet their needs; higher education can confer with industry to understand current and future workforce demands to identify pathways for students of all ages so that they can gain the knowledge and skills needed to participate in the knowledge economy.

Rural regions and smaller cities may have less developed "innovation ecosystems" than their more urbanized counterparts. This may include physical assets such as research facilities and broadband as well as "soft" assets such as networks, mentors, investment capital, and specialized expertise. Job creation numbers also lag, as rural localities and regions experience population, labor force participation, or educational attainment declines.

Job Creation, Innovation, and Technology

The Challenge: Higher education institutions are actively engaged in GO Virginia, supporting regional projects for economic growth and diversification, as well as special initiatives such as a current state-wide study of regional entrepreneur ecosystems led by TEconomy. Colleges and universities are key assets for regional innovation and job creation. A 2018 state report for the Virginia Research Investment Committee highlighted that Virginia was among the leading "innovation states" nationally with a high concentration of jobs in advanced industries, but that the state has underperformed on many innovation measures since the recession.

Universities in Virginia can continue to improve their technology and commercialization capabilities, as noted in that report, particularly in the advancement of translational research and commercialization practices. Specific improvements include, "providing more technical and market expertise input into how inventions are assessed before patent decisions are made; undertaking more invention lead prospecting with proven entrepreneurs walking the halls; increasing the access to proof-of-concept projects for de-risking university technologies; creating more streamlined templates and transparency in deal-terms; and better connecting with entrepreneurs, venture investors, and other stakeholders as the commercialization process unfolds and new start-ups are formed."

The Opportunities: Smaller companies, or entrepreneurs, in more rural areas may be much less familiar with how university research commercialization and technology transfer operates. Regionally-focused education, outreach, technical assistance, networking, knowledge-sharing, mentoring and related

activities to support collaborations between university researchers and students with more rurally based entrepreneurs and small companies should be on the agenda of research universities. This is of critical importance since so much of the patent and licensing activity of Virginia's universities is with non-Virginia companies, as many Virginia colleges and universities may have "a lack of close relationships with Virginia industry", at least in terms of research and innovation activities. Stronger university-industry networks within and across Virginia regions are essential.

Colleges and universities can also continue to partner with private industry in innovative public-private research initiatives, including more non-urban companies and/or continuing to make research activities and assets available in rural areas. Based in Prince George County, the Commonwealth Center for Advanced Manufacturing (CCAM) offers a prominent example as an applied research center with member companies engaged with Virginia research universities in a collaborative model that that enables partners to pool research and development efforts to increase efficiencies and combine research assets in real-world company settings to respond to ongoing, market demands and opportunities. The Institute for Advanced Learning (IALR) in Danville is another example of university-supported research assets and activities, but one with an explicit rural region focus, serving the counties of Patrick, Franklin, Henry, Pittsylvania, Halifax and Mecklenburg as well as the cities of Danville and Martinsville. The Institute has an economic development mission and includes an applied research focus in the areas of agriculture and polymers, seeking to strengthen and expand regional industry clusters in that area.

Inherently, the work of both IALR and CCAM require relationships with regional and state as well as global companies and includes building networks and making connections to research assets, including at Virginia's major research universities. Higher education institutions in Virginia and policy-makers should examine these and other models and engage in building and growing stronger university-company networks and collaborations across the commonwealth, particularly in targeted niches and sectors.

Healthcare and Community Well-Being

The Challenge: Rural patients often face high rates of chronic illness including hypertension, diabetes, cancer, obesity, and heart failure — rates that exceed those of their urban counterparts. Disparities in mental health access and disproportionately high rates of substance use are prevalent in rural areas, including alcohol, tobacco and opioids. Rates of opioid-related overdose deaths in non-metro counties are 45% greater than in metro counties. Rates of newborns suffering with neonatal abstinence syndrome are higher in rural communities than urban areas. Limited high-risk obstetrical care coupled with perinatal complications and higher than expected infant mortality rates are also challenges faced in rural Virginia. Access to care for rural patients is adversely impacted by workforce shortages and a mal-distribution of providers, high rates of uninsured status, and rural hospital closures.

Colleges and universities are actively engaged in contributing to rural health and well-being in a myriad of ways ranging from service profession, to workforce development, to practitioner training. Colleges and universities contribute to regional and state-wide initiatives, health assessments, and collaborations related to population health, public health, and health equity. The Dan River Health Collaborative is one such example. Motivated by health status rankings decline, The Health Collaborative was established in the fall of 2014, to create prevention strategies on the most chronic diseases—obesity, diabetes, stroke, heart diseases and cancer. The Health Collaborative includes nearly 100 individuals representing more than 50 organizations across a number of sectors, including significant higher education involvement from such institutions as Averett University, Danville Community College, Virginia Cooperative Extension, the University of Virginia, and others. The Collaborative has spurred numerous projects and initiatives and catalyzed the development of a 10-year regional community health plan to create an

environment that supports health for all residents and promotes healthy lifestyles in the Dan River Region.

University health systems continue to play a key role in extending telemedicine capacities in rural Virginia which are helping to alleviate overloads in overburdened health facilities and to reduce the barriers remote communities and patients face in receiving specialized healthcare. Colleges and universities, and their partners, can play a leadership role in addressing specialized health and wellness needs and services in rural regions. The University of Virginia, for instance, is now operating southwest Virginia's Care Connection for Children Program. The program provides community-based services and funds to support families with children with special healthcare needs. Professional care coordinators help children and their families access medical and community-based services targeted to each child's individual needs.

There is important work being done in rural regions as well by community colleges and smaller colleges and universities. The Virginia Community College System (VCCS) enrolled over 11,000 students in health science programs last year, including over 6,000 in nursing and 1,500 in emergency medical services. Many of these students attend colleges in rural communities, addressing the need for sonography and radiation technicians, medical laboratory technicians, physical and occupational therapy assistants, respiratory care technicians, and dental hygienists. These programs are often developed to meet regional needs. For example, in response to identified needs from central Virginia health care employers, Piedmont Virginia Community College is beginning new career studies certificates in echocardiography, vascular sonography and advanced imaging, as a way for health professionals to continue advancing in their careers and fill critical shortages.

As another example, Emory & Henry College has developed two undergraduate health programs and four graduate programs, including a College of Health Sciences campus in the town of Marion in Smyth County, Virginia. This investment is an example of how college investments can align with town development and overall economic development in rural counties. The Appalachian College of Pharmacy in Grundy, Virginia is another example of how higher education institutions can both respond to rural health needs and also be a part of rural economic development. The College is shaped by the community's vision to help improve the general health and well-being of rural and underserved populations but also to serve as an economic catalyst in Buchanan County, Virginia.

Faculty at higher education institutions throughout the Commonwealth are working on critical and cutting edge research and technology development related to the treatment and prevention of cancer, diabetes, substance abuse, and other injuries and diseases. Still, higher education can do more in terms of responding to rural challenges, contributing leadership and capacity to rural collaborative problem-solving, and translating knowledge and discovery to rural places, physicians, and patients.

Virginia Cooperative Extension (VCE) continues to be an important stakeholder in rural health initiatives. Extension touches every county in the Commonwealth and has extension educators who are practiced in working with research specialists, often based at Virginia Tech or Virginia State University, to develop and deliver programs and resources that respond to critical local needs. While many of Virginia's higher education entities have been relatively slow to respond to the state's opioids crises, VCE is leading a patient education program to help prevent hospital opioid misuse, and is leading a new USDA funded community-based prevention initiative in Grayson and Henry counties and the city of Martinsville. The intention is that these initiatives will complement and support the work of rural physicians and public health workers who have been at the forefront of Virginia's response to opioids.

Virginia Tech has also partnered with community colleges, workforce development agencies, and employers in the western part of the state to identify, design, and launch workforce training opportunities. This has included sectors like energy efficient construction and health information technology. It has also specifically targeted workers leaving the coal industry. Providing a combination of labor market analysis, technical experts, and assistance with employer outreach, these collaborations have been recognized by the National Governors Association and others as a model for sector-based partnerships improving labor market outcomes.

Education and Talent Development and Attraction

The Challenge: Companies located in rural areas often struggle to meet their workforce needs. Declining and aging populations present challenges as employers struggle to fill open positions. Rural school systems face a number of challenges including the recruitment and retention of qualified and effective teachers and leaders (a concern in many areas across the state, not just rural areas); K-12 enrollment declines and associated school funding declines; facility and infrastructure needs; and access to STEM learning resources and technologies. Access to affordable quality childcare is also a challenge in many, more rural areas of the Commonwealth. Retaining younger workers and attracting young professionals and mid-career workers and families is also a challenge in many places.

The Opportunities: Higher education, both public and private, has been one of the most effective means for breaking the cycles of poverty and increasing the economic conditions of individuals in our country. Higher education, at all levels, is primarily concerned with educating students and preparing future workers and contributing citizens.

The Virginia Plan for Higher Education sets forth a goal for Virginia to be the best educated state by 2030. By some measures, this is already a strength as the Commonwealth was ranked as the top state for public higher education in 2017 by Smart Asset. The ranking was based on high graduation rates, low student-to-faculty ratios and high 20-year return on investment for graduates. Again, there is an opportunity here to do better. In rural areas of the state, only 27% of Virginians have an associate degree or higher.

Community colleges in Virginia are an important provider of workforce skills and credentials and increasingly employ innovative instructional and delivery approaches. For instance, PluggedIn Virginia (PIVA), is a career pathways program that provides adult learners with a contextualized General Educational Development (GED®) curriculum integrated with industry-specific technical training as a means to develop essential workplace skills for entry-level jobs in targeted industries. Pairing basic skills instruction with occupational training, digital literacy, and workplace skills development, the model accelerates the preparation of low-skilled Virginians from what once required years to just 6-8 months.

VCCS has leveraged a philanthropic gift to train the incumbent workforce in childcare facilities in the southwest, where the majority of childcare providers lack education beyond a high school diploma. Grant funding pays tuition and fees and supports coaching in the workplace and alternative course delivery models to enable childcare providers to complete a Career Studies Certificate in early childhood development. The certificate stacks to an associate degree and to a bachelor's degree for individuals who want to teach in early elementary grades. To date, almost 100 incumbent workers in the region have increased their child development knowledge and skills, resulting in improved early childhood education across the region served.

Virginia's Community Colleges are becoming very nimble in addressing local workforce needs. In

addition to short-term FastForward training programs that lead to in-demand industry certifications, colleges can rapidly start up new educational programs leading to certificates and technical studies degrees based on employer needs. Working with an employer advisory committee, a college can create a new program or realign an existing program to meet an identified need. Work-based learning opportunities provide hands-on experience for students and develop a potential hiring pool for employers.

In 2016, after receiving funding from the General Assembly via the New Economy Workforce Credentials Grant, VCCS started the FastForward program. This short-term, noncredit workforce training program has generated over 11,000 high demand credentials since its inception. Forty percent of the credentials earned have been in rural areas, where 25% of the population resides. Clearly, the demand for these credentials is high in rural areas. State funding reduces the cost of these credentials by 2/3 for eligible students, and the program only pays for success. The FastForward model is affordable, good for business, and provides coaches to help students every step of the way, from registration to credentialing to job placement. To date, more than 90% of our students have successfully finished their courses, and early wage record analysis shows salary gains between 25 and 50% for the majority of FastForward students who complete classes and earn credentials.

Community colleges in rural regions also partner with four year colleges in meaningful ways to address workforce needs. Ensuring that Virginia continue to grow a pipeline of trained information technology-sector and cybersecurity workers is critical to retaining and attracting technology sector jobs. Southwest Virginia Community College (SWCC) and Mountain Empire Community College partnered with UVA Wise to implement the Southwest Virginia Regional Cybersecurity Initiative, to position this seven county Southwest Virginia area as a regional hub for the cybersecurity industry.

Started as a privately funded pilot in 2014, the Rural Virginia Horseshoe Initiative focuses on raising educational attainment levels in both secondary and postsecondary education among rural residents. Fourteen community colleges are in the footprint of the Horseshoe region, which stretches from the Eastern Shore, down through Southside Virginia, to Southwest Virginia and up the Shenandoah Valley. The goals of the 10-year initiative are simple and direct, and, if achieved, they will signal a tremendous shift in the educational profile of Rural Virginia.

- Reduce the number of residents of the Rural Horseshoe without a high school diploma in half (from 1 in 5 to 1 in 10).
- Double the population in the Rural Horseshoe with a postsecondary certificate, credential or degree (from 26% to 52%).

Most of the funding for the Rural Horseshoe program is from private donations. The General Assembly has included a modest line item in their current budget to support this initiative. Rural community colleges design program activities based on regional needs that align with the goals; those activities include high school career coaching and financial incentives and coaching for adults to return to school for education and training. To date over 12,000 rural Virginians have benefited from one-on-one coaching services and education and training incentives.

Youth development and K-12 learning are also critical and colleges train teachers and youth development and early childhood specialists and educators, and provide critical research and resources for K-12, including STEM learning opportunities and career exploration activities. Virginia Cooperative Extension's 4-H program engages 188,563 youth ages 5-18 in positive youth development programming. The majority reside in rural regions, and 44% of those youth reside in towns or rural

communities with a population below 10,000.

Community Development, Agriculture, and Place-based Entrepreneurship

The Challenge: The sources of strength and differentiation for rural communities has often included a strong, attractive, vibrant downtown; a thriving agriculture and natural resources sector; and locally owned and operated small businesses with ties to their community. For many reasons tied to increased globalization and changing consumption patterns and personified by companies such as Amazon and Wal-Mart, rural America has struggled to maintain its historic strengths. There are many thriving rural towns in Virginia, but also many communities in need of greater support for more vibrant downtowns, a more sustainable agriculture and natural resources climate for existing and new farmers as well as food and forest related enterprise, and for small business start-up and growth.

The Opportunities: This paper acknowledges that in some aspects of rural community-building, the record of ongoing success and rooted engagement is perhaps a strength of smaller, more locally connected colleges and four-year universities. Local, smaller colleges and universities have a long history and strong record of civic work and inter-connected, deep partnership with rural people and places. These institutions continue to adapt and grow, often in concert with the issues and opportunities faced by the people, businesses and organizations in their community. Mentioned earlier, the development of Emory & Henry College's School of Health Sciences, with an overt mission to equip health care professionals to work in rural areas with high-need populations represents one example. These institutions also have a direct economic impact on rural places, as employers and purchasers. For example, a 2016 study found that Shenandoah University's economic impact on Frederick County in the northern Shenandoah Valley was \$145 million, an increase of nearly 60% since 2010.

Rural communities often focus on entrepreneurship as an economic development engine. Small companies account for the majority of net new jobs created in the U.S. UVA's College at Wise has been successful in promoting entrepreneurship as an economic development strategy. The development of the Blueprint for Entrepreneurial Growth and Economic Prosperity in Southwest Virginia was the catalyst to launch Opportunity SWVA, which is a network of 30 entrepreneurial and small business support organizations working across a four-planning-district, 17-county area in the western part of the Commonwealth. This network has spurred more than 40 business plan competitions. Within the past three years, more than 100 new businesses were formed and more than 300 new jobs created in the region. Business types vary, but most of the businesses have some connection to place, and most are likely to remain in the region and contribute to downtown vibrancy and tourism.

While smaller, rurally located institutions are a civic catalyst and economic engine in rural regions, Virginia's larger research university do play a key role. Sometimes this entails making connections to additional resources, research, networks, and services to support economic growth in specialized areas or sectors. For instance, Virginia State University (VSU), in partnership with Virginia Cooperative Extension, operates the Small Farm Outreach program which aims to encourage and assist limited-resource, socially disadvantaged and military veteran farmers and ranchers to own, maintain and operate farms and ranches independently, to participate in agricultural programs and improve their overall farm management skills. In addition, though based in Petersburg, VSU researchers have played a key role in advancing opportunities across rural Virginia in specialized agriculture activities such as aquaculture, direct marketing, and non-timber forest products.

Universities including Virginia Tech and Liberty in conjunction with community colleges such as New River Valley have partnered with private and public sector partners in developing the Ridge and Valley chapter of the Association for Unmanned Vehicle Systems (AUVSI). This represents an effort to

strengthen the capacity of the region to support, grow, and attract companies and entrepreneurs engaged in some aspect of autonomous systems. Virginia Tech operates the Mid Atlantic Aviation Partnership and has helped support the exploration of unmanned systems-related economic development in places like Wise and Alleghany counties. The explosion of the craft beer industry in Virginia, much of which has also been present in rural communities, has been supported by food science and hops researchers at Virginia Tech. James Madison University researchers are among those at many institutions helping rural growers explore opportunities related to hemp production.

Leadership and Civic Capacity

The Challenge: Another historic strength of rural places has been the strong social connections, active community life, and strong civic and community organizations and activities. Analysis following the recent presidential election highlights the increasing polarization along the lines of geography, ethnicity, educational level, and economic status. This includes an increasing physical and psychological distance between the cultures and economies of our urban and rural regions. At the same time, there is an increasing suspicion of, and disengagement with, public and private institutions, including traditional bulwarks of community such as churches, companies, and governments.

The Opportunities: Higher education entities lend support to rural communities and build civic capacity in a number of ways. Again, this is true across institution type from community college to small college to research universities. Often, small colleges participate in longer-term, sustained place-focused initiatives and are able to have a generative effect on localized communities, over years, and even decades.

The training of leaders cuts across sectors and majors. Radford University, for instance, has a distinguished history of training K-12 administrators, providing strong principals and school division leaders. VCU and Virginia Tech have strong urban planning and public administration programs providing graduates who become county and town administrators, planners, and more. Virginia Cooperative Extension has helped to train county elected officials and offered advanced training experiences for Virginia's agricultural leaders. 4-H has provided leadership development experiences for thousands of rural youth.