

MEMORANDUM

TO: Legislative Oversight Commission on Education Accountability (LOCEA)

FROM: Dr. Juliana Serafin, Senior Director Division of Science and Research, HEPC

DATE: October 28, 2020

RE: Vision 2025: Science & Technology Strategic Plan Annual Report

Vision 2025, the West Virginia Science and Technology Strategic Plan, was developed by the West Virginia Science and Research Council (SRC) and a group of diverse stakeholders in May and June 2015. Vision 2025 is the strategic plan to guide our efforts to achieve the vision: “By 2025, Science, Technology, and Engineering are West Virginia’s Leading Economic Growth Drivers Attracting Investments, Creating Jobs, and Improving Our Quality of Life.”

There are five objectives in the plan: 1. Financial Development; 2. Physical Development; 3. People Development; 4. Cultural Development; and 5. Innovation Economy Development. Each objective has two or three “smart goals,” specific, measurable, attainable, results-focused, and time-bound.

That plan is more than five years old and must now incorporate statewide research priorities, as required by the National Science Foundation (NSF) Established Program to Stimulate Competitive Research (EPSCoR). The Division of Science and Research again has assembled stakeholders to revise West Virginia’s Vision 2025 strategic plan. In conjunction with the Higher Education Policy Commission, the Division of Science and Research will be working with our research institutions and partners across the state to develop a final draft of the new plan by April 2021.

For FY20, the progress on objectives outlined in the existing Vision 2025 plan is summarized below.

Key Objective: Financial Development

Smart Goal: Obtain \$6 million in state-based funding for the HEPC Division of Science and Research and match 3-1 with external funding by July 1, 2017, and grow 5 percent per year thereafter.

Progress: Due to the state’s economic instability and limited budgets for higher education, no additional funds have been designated the past several years. The state’s 2008 initial investment of \$50 million in the Research Trust Fund (RTF) continues to bring research funding to both West Virginia University and Marshall University, although all those funds were dispersed to the institutions by 2013. In FY20, the Research Challenge Fund (RCF) did have a small reduction due to loss of state income during the COVID pandemic. Separate reports on the RTF and RCF are available upon request.

Smart Goal: Dedicate \$10 million in annual funding with private 1-to-1 match for a Science and Technology Future Fund starting July 1, 2017

Progress: This program has not been created.

Smart Goal: Obtain \$1 million funding for start-up and venture businesses with private 1-to-1 match by July 1, 2017 and grow 10 percent per year.

Progress: During the FY19 Legislative session, the Legislature enacted, and the governor signed the Small Business Innovation Research and Small Business Technology Transfer Matching Funds Program. House Bill 2550 will provide a \$2,500 “WV Phase Zero” grant to companies or researchers who submit an SBIR/STTR application; award up to \$100,000 to companies who win an SBIR/STTR Phase I grant; and, award up to \$200,000 over two years to companies that win an SBIR/STTR Phase II grant. In 2019, there were six SBIR/STTR awards in West Virginia:

https://www.sbir.gov/sbirsearch/award/all/?f%5B0%5D=itm_field_award_yr%3A2019&f%5B1%5D=im_field_state%3A105860

In 2020, TechConnect West Virginia, in partnership with the West Virginia Small Business Development Center, again was awarded a \$125,000 Federal and State Technology Partnership Program (FAST) grant by the U.S. Small Business Administration to help West Virginia research and development (R&D)-focused small businesses apply for and win federal Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) grants. This is the second consecutive award of funding for this program.

NextUp WV, which is funded by the US Economic Development Administration, reports that \$2.226 million in private capital investments were made in technology-based companies in West Virginia since 2017: <https://techconnectwv.org/wp-content/uploads/2020/01/NextUp-West-Virginia-Final-Report-Dec-2019.pdf>

Key Objective: Physical Development

Smart Goal: Determine statewide needs for science and technology facilities to enable research and business growth goals at universities and technology parks by July 1, 2016

Progress: This activity has been completed but will be updated in the new plan.

Smart Goal: Upgrade and increase science and technology facilities to enable research and business acceleration needs for Vision 2025 at universities and technology parks by July 1, 2024

Progress: Specific needs will be reassessed in the revision of Vision 2025.

Marshall University, West Virginia University, and West Virginia State University continue to benefit from the National Science Foundation RII Track 1 EPSCoR grant which has been extended through 2021, and Marshall and WVU from the state’s investment in the Research Trust Fund.

The West Virginia Regional Technology Park, located in South Charleston, has hired a new CEO to create new partnerships and increase occupancy. The WVRTP is owned by the West Virginia Higher Education Policy Commission and operated by the West Virginia Regional Technology Park Corporation.

Smart Goal: Ensure continual upgrades and expansions of broadband infrastructure to meet prevailing FCC and E-rate standards and follow the recommendations of the West Virginia Strategic Broadband Plan for statewide administration, promotion, and development, starting July 1, 2017.

The West Virginia Broadband Enhancement Council (BEC) was established by SB488 in 2015 to replace the Broadband Deployment Council, which was sunset in December 2014. In 2019, the BEC published the [West Virginia State Broadband Plan 2020-2025](#) as an update to the 2014 Strategic Plan for Broadband. The current plan covers the current state of broadband in West Virginia, key ongoing broadband initiatives in the state, recent legislative and policy changes, barriers and challenges to broadband development, and goals and strategies to improve broadband infrastructure and expand broadband use across the state.

The WVBECC is actively focused on recent broadband projects and initiatives sponsored by the U.S. Department of Agriculture (including the ReConnect and Community Connect initiatives) and the Federal Communications Commission (including the Connect America initiative and the Rural Digital Opportunity Fund).

In 2018, the West Virginia Legislature passed the “Dig Once” policy, designed to provide telecommunication companies a more efficient and expedient process for broadband deployment within the West Virginia Division of Highways (WVDOH) rights-of-way (ROW). The WVDOH and the WVBECC jointly developed a guide to help companies comply with this new legislation.

The West Virginia Broadband Infrastructure Loan Insurance Program has been developed to expand, enhance and make generally available broadband service throughout the State of West Virginia. The program places a primary emphasis on the development of broadband infrastructure in unserved and underserved areas of the state. This program is coordinated by the West Virginia Broadband Enhancement Council and the West Virginia Economic Development Authority.

Key Objective: People Development

Smart Goal: Create and implement a STEM and entrepreneurial-based education and workforce development plan by December 31, 2016

Progress: The West Virginia Development Office has several programs for Workforce Development <https://westvirginia.gov/advantage-west-virginia/educational-workforce/> and <https://westvirginia.gov/incentives-and-programs/workforce-programs/>.

The most recent National Science Foundation (NSF) EPSCoR RII Track 1 grant, “Waves of the Future,” focused on STEM-specific education and workforce development through programs at West Virginia University, Marshall University, West Virginia State University, Shepherd University and West Virginia Wesleyan College. This grant (2015-2020) is now in a no-cost extension phase, and these activities are ongoing through 2021.

The 2020 Governor’s STEM Institute (GSI) was canceled due to the pandemic, but continues to provide younger students with opportunities. The WVU Center for Excellence in STEM Education is developing a stronger pipeline of STEM educators and fostering the next generation of STEM professionals through special programming.

Smart Goal: STEM faculty at all West Virginia colleges and universities have opportunities to be rewarded for entrepreneurial activities and innovation in promotion and tenure considerations by January 1, 2017

Progress: Promotion and tenure procedures at all colleges and universities vary, and the institutions have been given a great deal of latitude to establish their own personnel policies. While measuring this goal has proven difficult, some institutions have established policies that reward entrepreneurial and innovation activities.

Key Objective: Cultural Development

Smart Goal: Increase West Virginia public's understanding of the value of STEM and research by 5 percent annually starting January 1, 2016

Progress: The COVID-19 pandemic has limited opportunities for in-person events in 2020 but it does present new virtual opportunities to promote awareness of STEM activities. After recently presenting an initial virtual STEM Speaker Series presentation, the Division of Science and Research is evaluating the virtual format to see how it can be used to reach a broader audience, especially students. The division's quarterly magazine, the Neuron, continued publication with a special double-issue highlighting ongoing efforts of STEM during the pandemic. EPSCoR scientists and their research are highlighted in brief documentary-style videos hosted on YouTube and promoted through social media. The Neurite, a middle- and high-school-focused magazine, was converted into a digital format and first published online in June 2020.

The measurement used to evaluate this goal is a STEM Speaker Series survey which indicates a consistent and growing level of awareness the past few years.

Smart Goal: Increase external understanding and awareness of West Virginia's STEM strengths and attract new STEM-based businesses by increasing external communication, public relations, and marketing activities starting January 1, 2016

Progress: The Division of Science and Research plans to become involved in assisting the West Virginia Regional Technology Park in new initiatives designed to attract external STEM businesses to the state.

Key Objective: Innovation Economy Development

Smart Goal: Grow number of technology-based businesses by 2 percent annually starting July 2016

Progress: The TechConnect West Virginia website has published a map of the Innovation Economy in the state, <https://techconnectwv.org/wv-innovation-economy-map/>, which, when updated, will provide a baseline for measuring the growth of technology-based businesses. The NSF-funded INCLUDES First2 Network is updating that map as part of their STEM Asset mapping effort.

Smart Goal: Increase research and development public and private expenditures in WV by 6 percent annually starting January 1, 2016

Progress: HERD (Higher Education Research & Development <https://ncesdata.nsf.gov/herd/2018/html/herd18-dt-tab066.html>) data from NSF on research expenditures shows that public university research expenditures in West Virginia grew by 5.6 percent from 2016 to 2017 and 0.7 percent from 2017 to 2018. The latest data available are from 2018 research expenditures.