

TRANSFORM CVI INTO THE STEM EDUCATION CENTER

A Path Forward



NATIONAL YOUTH SCIENCE FOUNDATION®

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Cover Photos	Description
Top	Exterior, front view of the Canaan Valley Institute's (CVI) Research and Education Building, a Silver LEED-certified building constructed with funds from the National Oceanographic and Atmospheric Administration (NOAA) showing the storm-water constructed wetland.
Middle Left	Youth Science Discovery Experience (YSDE) students work with Ed Watson, Hydrologist at the CVI on a stream restoration project.
Bottom Left	A YSDE student works on the design of a wind turbine at CVI.
Bottom	YSDE students launch a rocket they constructed at the CVI.

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A Path Forward

The National Youth Science Foundation® (NYSF) is a non-profit 501 (c)(3) corporation established in 1983 to support and sustain one of the nation's longest running science, technology, engineering, and mathematics (STEM) enrichment activities. Through its flagship program, the National Youth Science Camp (NYSC), and other STEM programs, the NYSF has now served more than 5,500 of the nation's best and brightest science and mathematics students. Based on this experience the NYSF has committed to a bold path to forward its mission.



Mission Statement

The mission of the National Youth Science Foundation is to inspire lifelong engagement and ethical leadership in science, technology, engineering, mathematics, and related professions through its proven educational model for mentoring, challenging, and motivating students. By building communities among students, teachers, and professionals, NYSF programs bridge the gap between the traditional school curriculum and careers in science, technology, engineering, mathematics, and related professions.

Major steps along this path include:

☑ Step One - Create a Vision

In the 1980s, the NYSF committed to a bold plan to construct a National Center for Youth Science Education (NCYSE). The NCYSE will allow the NYSF to expand and improve its programs and become a focal point that encourages and inspires youth to pursue education and careers in STEM.

☑ Step Two - Establish a Partnership with the Canaan Valley Institute

In 2004, the NYSF and CVI began discussions about possible collaboration and co-location of facilities. In 2006, the organizations executed an agreement detailing important synergies between the two organizations. The organizations' shared interests provided a natural sequel into the joint use of important site facilities that would benefit the programs, resources, and public funds utilization of each organization. This agreement also

documented the contingent disposition of the improvements and preserve if either organization ceased to exist or was unable to conduct significant activity.

☑ Step Three - Acquire Real Property

In 2009, after a decade-long search, the NYSF purchased 111 acres alongside the Blackwater River near Davis, WV, to serve as the future home of the NCYSE. Located adjacent to CVI, this purchase was completed to further the organizations' shared commitment to complementary educational and scientific goals and research activities. The property's isolation, proximity to public transportation corridors, outdoor recreation and adventure opportunities, and connection to utilities were critical characteristics. The NYSF's property is located within the State of West Virginia's 2,500 acre Little Canaan Wildlife Management Area and near the Canaan Valley National Wildlife Refuge.



☑ Step Four - CVI Constructs its Research and Education Center

In 2009, with funding from the National Oceanographic and Atmospheric Administration (NOAA), CVI completed construction of two buildings: the **Research and Education Center** and the **Research Support Building**. These buildings are located along Corridor H, a four-lane, limited access highway that connects the Allegheny Highlands region with Northern Virginia. Once complete, travelers will be able to access the Dulles International Airport in about 2 hours.

Research and Education Center

- **LEED Certified** by the United States Green Building Council
- **Conference Hall** (3,500 ft²) for 120 people (dividable)
- **Research Laboratory** (1,000 ft²) research laboratory capable of supporting 4 independent researchers
- **Teaching Laboratory** (1,000 ft²) for as many as 17 students
- Tiered 39-station **Computer Laboratory** (1,500 ft²)

☑ Step Five - Develop the NCYSE Master Plan

In 2010, the NYSF published its NCYSE Master Plan that called for the construction of critical spaces in support of the NYSF's flagship program and other, new STEM-focused programs. See <http://masterplan.nysf.com>.



Artist's Rendering of the Commons Area of the NCYSE

☑ Step Six - Develop New STEM Programs

Since 1963, the NYSC has served as the flag-ship program of the NYSF. Building on its success, the NYSF has developed and operated other important STEM education programs, including:

- WV Governor's School for Math & Science (2005 through 2014)
- WV Youth Science Camp (1994 and 1995; 2011 to present)
- Youth Science Discovery Experience (2010 through 2014)¹
- Youth Science Leadership Institute (2002 and 2006)
- Community Science Seminar (2002 and 2003)

Through these existing and new programs and partnerships with STEM professionals and organizations, the NYSF has the ability to reach future generations of STEM students. The appendix includes brief descriptions of the NYSC and the Youth Science Discovery Experience (YSDE).

☑ Step Seven - Establish Community Connections

Since 2010, the NYSF has conducted sessions of the YSDE in Tucker County, West Virginia. These sessions were based in CVI's Research and Education Building and engaged CVI STEM professionals and others in

¹ Held at the Canaan Valley Institute.

support of the projects. Additionally, the NYSF purchased services and materials from area businesses, including: Alpine Lodge, Big Belly Deli, Blackwater Falls State Park, Catering by Gary Carr, Catering by Kimmy Clements, Siriani's Cafe, and White Grass Cafe.



The NYSF has also been an active member of the Heart of the Highlands (HoH) Trail System. The HoH Trail System consists of a 23-mile core loop connecting to other outdoor resources. Conceived with an emphasis on economic development, the NYSF and CVI worked closely together to complete the first newly constructed trail as part of the core system. The Splash Dam South Trail crosses the northern edge of NYSF property and connects the Blackwater Falls State Park with the Canaan Valley National Wildlife Refuge.

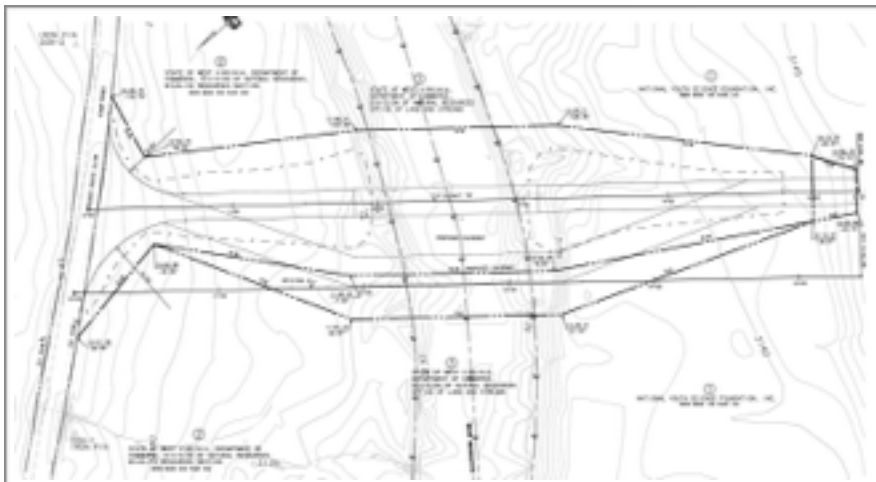
Step Eight - Renew the NYSF's Strategic Plan

In 2012, the NYSF Board of Trustees committed to reviewing and revising the organization's Strategic Plan. Following an inclusive process that developed consensus from valued stakeholders, the NYSF Board of Trustees adopted a ten-year strategic plan in May 2014. With overarching goals, the strategic plan identifies measurable objectives for the short-term (two years), medium-term (five years), and long-term (ten years).

Step Eight - Link NCYSE and CVI

In 2015, a bridge spanning the Blackwater River linking the NCYSE with CVI will be constructed; surveys have already been completed and the site is being prepared for construction. This bridge will provide important access

to the NYSF's property and the Splash Dam South Trail of the Heart of the Highlands Trail System from Camp 70 Road. Providing primary access to NYSF property, this bridge will allow pedestrians convenient access between the two facilities.



❑ **Step Nine - Transfer CVI Facilities to the NYSF**

In 2014, CVI requested that NOAA provide disposition instructions that would allow CVI to divest its property. Based on its standing agreement with CVI, the NYSF immediately petitioned NOAA requesting that the NYSF be selected as the steward of this important education facility.

On January 22, 2015, NOAA requested that the NYSF submit a written proposal to acquire ownership of the CVI property. The expectation is that this transfer will be completed on or before June 1, 2015.



❑ **Step Ten - Prepare and Submit Proposal to NOAA**

As required by NOAA, the NYSF will develop a comprehensive proposal to assume ownership of the CVI property. This proposal will include information on the NYSF's planned use of the facilities consistent with NOAA's mission and a financial plan to operate and maintain the property.

❑ **Step Eleven - Reimagine the NCYSE Master Plan**

The NYSF will engage an architectural and engineering firm to reconsider the current Master Plan of the NCYSE. With access to and control of the CVI property, construction costs of the NCYSE will be reduced as duplicative facilities are eliminated.



❑ **Step Twelve - Establish the STEM Education Center**

Consistent with the NYSF's long-term objective to develop the NCYSE on its property adjacent to CVI, the NYSF plans to transform CVI's facilities into the **STEM Education Center**. Located within a ten-minute walk from the NYSF's planned NCYSE, the STEM Education Center would accelerate the NYSF's move to Tucker County and permit the NYSF to operate STEM education programs there as soon as July 2015.

□ **Step Thirteen - Obtain Designation as a WV STEM Network Hub**

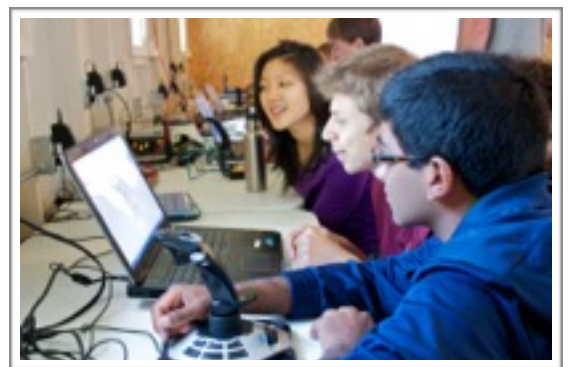
The NYSF plans to request that the STEM Education Center be recognized as a Regional Network Hub in the West Virginia STEM Network as proposed by the Governor's STEM Council. This designation has been endorsed by West Virginia's State Superintendent of Schools, Dr. Michael Martirano.



According to the Governor's STEM Council Report, "The goal of a HUB is to amplify and accelerate the impact of existing STEM programs within a particular region. It is designed to support STEM programs and schools, increase the ability of existing STEM assets to generate regional impact, grow linkages between and support of existing STEM assets in a region, identify gaps in the system, and connect other STEM initiatives to that region's STEM efforts."

As part of the state's Network, the host organization and its Hub are expected to:

- Provide adequate space for administration and programs.
- Conduct activities in support of STEM that might include professional development courses in STEM education, STEM camps, outreach programs, and dual-credit courses for K-12 students.
- Meet a standard metric of outcomes that might include increasing the number of students that participate in meaningful STEM activities and expanding the number of STEM internships provided by businesses.
- Establish partnerships with STEM-related businesses that could provide important funding and work-based learning experiences for students and teachers.
- Collaborate with other members of the WV STEM Network and organizations that can provide critical support for the development of STEM in West Virginia.



□ **Step Fourteen - Chart the Path Forward**

Future steps along this path forward include:

- Implement the Youth Science Discovery Experience at the STEM Education Center.
- Move the National Youth Science Camp to the NCYSE.
- Implement the Youth Science Leadership Institute to the NCYSE.



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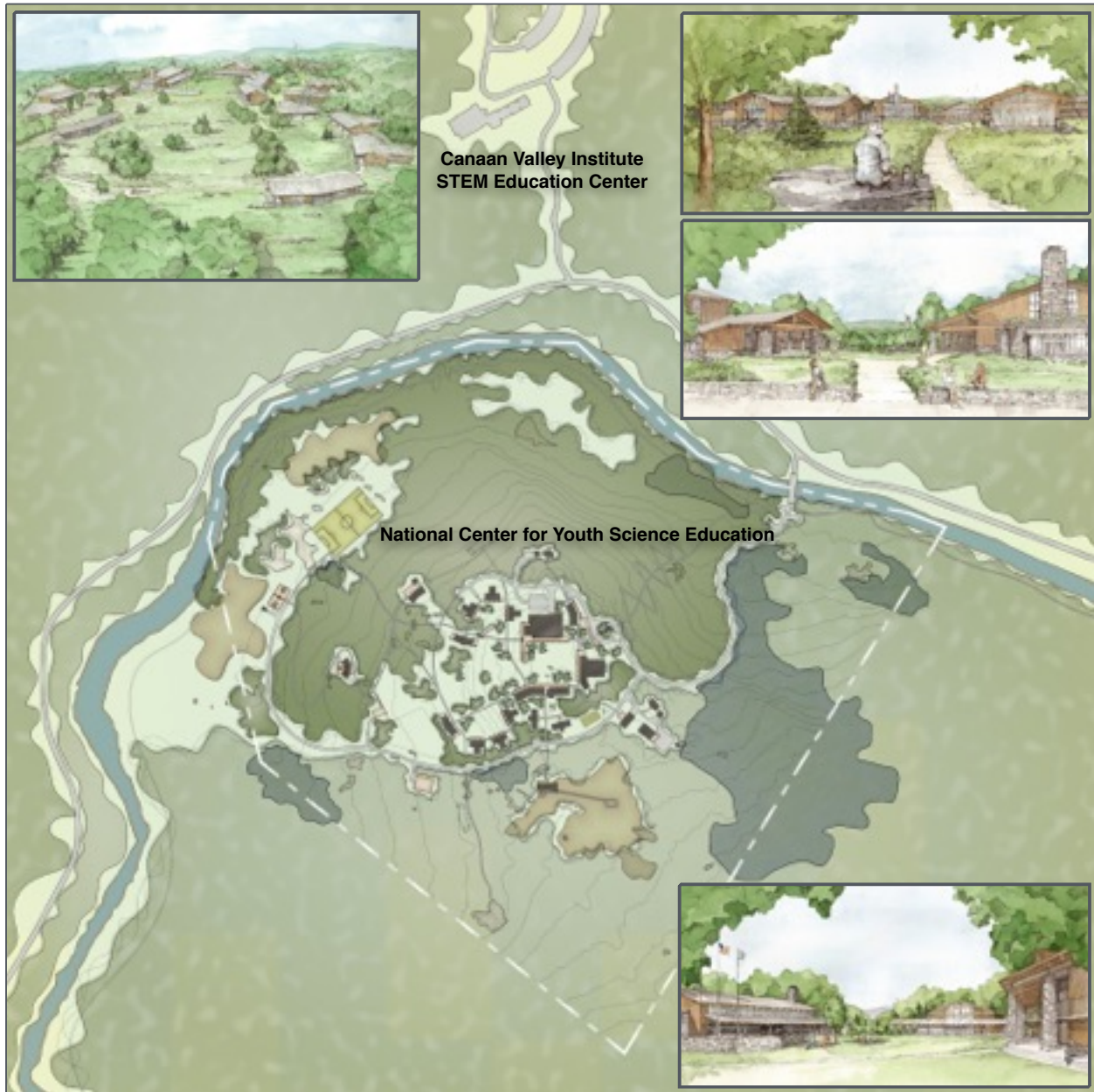
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Diagrams, Maps, and More

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Canaan Valley Institute Overview



