

2019 Local Government Forum Stormwater & Green Infrastructure Workforce Development Compiled Case Study Presentations

1. Chesapeake Bay Landscape Professional (CBLP) Certification Programs Beth Ginter, CBLP Coordinator





Chesapeake Bay Landscape Professional Certification

Stormwater & Green Infrastructure Workforce Development Forum
National Conservation Training Center, Shepherdstown, WV
September 11, 2019










CBLP Programs




	Audience	Cost
CBLP Level 1	Landscape professionals	\$445
CBLP Level 2	Landscape professionals	\$580/\$630
CBLP-A (Associate)	Young people entering work force	Partner fee to establish program: \$3500 Registration: \$50 per person
Maintenance Certificate (Pilot)	Maintenance crew leaders/Crew	TBD



CBLP Program Requirements

	Entry into Program	Requirements for Completion	Recertification
CBLP Level 1 Certification	Degree or certificate OR pro certification OR work experience	2-day class + Written exam	20 CEUs every 2 years \$150
CBLP Level 2 Certification	Level 1 certification + experience in design/installation of BMPs	3-day seminar + project + written assessment	None
CBLP-A Certificate	None	Combined passing score (quizzes, field exercises)	None
Maintenance Crew Certificate (Pilot)	None	1-day workshop + in-class quizzes	None

CBLP Program Content

Level 1 baseline credential with a focus on design, install, maintenance of stormwater practices and sustainable landscapes

Level 2 advanced credential in design, installation

CBLP-A (Associate) introduction to green infrastructure and sustainable landscaping

Program Hallmarks – We Teach:

- collaborative practice
- critical thinking
- proactive approach
- adaptive management
- unique ecology and regulatory environment of the Bay region





CBLP Classroom Experience



- Experienced Instructors
- “Flipped Classroom”
- Active Learning
- Self-Study





Level 1 Field Maintenance Practicum

- Good, Bad and Ugly
- BMP Inspection “Visual Indicators” Protocol
- Understanding Why BMPs Fail
- Simple Tools
- Guest Speakers
- Collaboration











Level 2 Intensive Seminar Content



Day 1 – Site Assessment; Soil Vegetation Protection

Day 2 – Stormwater Design & Installation

Day 3 – Natural Plant Communities


Program Outcomes/Metrics

- L1 trained: 630
- L1 certified: 447
- L2 trained/certified: 77/60
- CBLP-A: 55
- Advanced training attendees: 172

Level 1 “Hands On” Projects (2016-17)

Reductions:

- Sediment – 699,104 lbs
- Nitrogen –1873 lbs
- Phosphorus - 1117 lbs







Beth Ginter
Director, CBLP Certification Program

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2. Blue Ridge Community & Technical College (CTC)

Cynthia Hull-Miller, Blue Ridge CTC





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Environmental Science Technician Program

- 30 Credit Certificate and AAS Degree
- Two Concentrations – Environmental Science Technician and Occupational Safety
- Training students for careers with consulting services, government, and laboratories
- HS Graduates, Career Changers and those currently employed who need training
- West Virginia Invest Approved Program – little to no cost
- Advanced Grants and Learn and Earn Grants for those employed and training



Applied UAS Technologies

- Training Technicians to apply drones in everyday uses
- Prepares students for careers with consulting services, government, and private sector- construction, maintenance, and energy.
- HS Graduates, Career Changers and those currently employed who need training
- West Virginia Invest Approved Program – little to no cost
- Advanced Grants and Learn and Earn Grants for those employed and training



Applied Laboratory Tech/ Quality Assurance Techs

- Training Technicians for routine laboratory or field testing
- Prepares students for careers with consulting services, government, and manufacturing.
- HS Graduates, Career Changers and those currently employed who need training
- West Virginia Invest Approved Program – little to no cost
- Advanced Grants and Learn and Earn Grants for those employed and training



Income Potentials




- Labor Statistics 2019 – www.bls.gov
 - Environmental Technicians - \$44,000/yr.
 - Occupational Safety - \$44,000/yr.
 - UAS Technicians - \$44,380/yr.
 - Applied Laboratory Technicians /Quality Assurance Techs - \$48,000/yr.



West Virginia Employers

Learn and Earn Grants Advanced Grants



Environmental Science Technician – Environmental Studies

General Education Core




- CAS 111 - Information Literacy (3) (2)
- ENGL 101 - Introduction to Psychology (3)
- COMM 205 - Professional Communications (3)
- ENGL 101 - Written English (3) (2)
- ENGL 111 - Technical Writing & Communication (3)
- MATH 111 - Intermediate Mathematics (3) (2)
- MATH 111 - Technical Mathematics (3) (2)
- SOCI 215 - Human Relations (3)

Subtotal Credit Hours Required: 15

Environmental Science Technology Core

- EAS 108 - Geographic Information Systems (2)
- ENVT 101 - Environmental Science (3)
- ENVT 105 - Intro to Safety (1)
- ENVT 102 - Industrial Hygiene (3)
- ENVT 130 - Air and Water Pollution (3)
- ENVT 122 - Laboratory Technician (3)
- ENVT 111 - Laboratory Technician (3) (2)

Subtotal Credit Hours Required: 18

Applied UAS Technologies

General Education Core

- ENGL 110 - Technical Writing & Communication (3)
- ENVT 101 - Environmental Science (3)
- GEOG 101 - Geological Sciences (3)
- MATH 114 - Elem Probability & Statistics (3)
- SOCI 215 - Human Relations (3)

Applied UAS Technologies Core

- ENVT 220 - Environmental Software (3)
- ENVT 230 - Geospatial Studies (3)
- UAS 101 - Intro to Drone Applications (2)
- UAS 102 - Drone Operations I (3)
- UAS 103 - Drone Operations II (3)
- UAS 105 - Introduction to GIS (3)
- UAS 201 - Private Pilot Ground School (3)
- UAS 205 - Environmental GIS (3)
- UAS 206 - GIS for Urban Planning (3)
- UAS 230 - Aviation Meteorology (3)
- UAS 240 - Drone Imaging (3)
- UAS 270 - Drone Project Planning (3)








Applied Laboratory Tech/Quality Assurance Techs

Applied Laboratory Technician

- 30 Credit Certificate and AAS Degree
- Two Concentrations – Analytical and Microbiology
- Training students for careers in manufacturing and government laboratories

Quality Assurance Technician (QAT) Training

- Customized training in laboratory techniques and instrumentation, safety, and process quality.
- Good option for career changes or those who already have a bachelor's degree
- HEAPS approved

Environmental Science

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Applied UAS Technologies

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Education




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3. Howard County EcoWorks Lori Lilly, Howard County EcoWorks


Howard EcoWorks workforce programs

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READY
A Workforce Development Program of Howard EcoWorks



- Summer workforce program for young adults (16-25)
- Construct and maintain stormwater and green infrastructure projects
- Howard County residents
- Opportunities for Crew Member, Assistant Crew Leader, Crew Leader, Materials Handler, Driver, Foreman
- 8-10 weeks in length
- ~\$120,000+ for 3 crews of 7 + support (does not include program management)
- Entry-level, no pre-requisites
- Receive CBLP-A certificates







UPLIFT
A Workforce Development Program of Howard EcoWorks



- Adult workforce program
- Targets under-served populations
- Construct and maintain stormwater and green infrastructure projects
- Howard County resident preferred
- Opportunities for Crew Member, Materials Handler, Foreman
- 9-10 months in length
- ~\$100,000+ for 1 crew of 5 (does not include program management)
- Entry-level, no pre-requisites
- Receive CBLP-A certificates

*Under-served: Individuals with criminal record, English as a second language, people who became parents as minors, learning / developmental / emotional disabilities, 2nd plus generation impoverished, homelessness, circumstantial economic hardships, GED/less than high school diploma adult







SEEDS OF CHANGE
An Environmental & Workforce Development Program of Howard EcoWorks



- Workforce program at Corrections Dept
- Maintain native plant nursery
- Opportunities for Nursery Internship
- ~6 weeks in length – 3 weeks of classroom and 3-week internship
- ~\$15,000+ for education delivery + internships
- Entry-level, no pre-requisites
- Receive Landscape for Life certificates







New Construction





Local Government Advisory Committee
to the Chesapeake Bay Executive Council

NWF

ALLIANCE
for the Chesapeake Bay

Stream Restoration Maintenance



1850 lbs of Japanese knotweed

Local Government Advisory Committee
to the Chesapeake Bay Executive Council

NWF

ALLIANCE
for the Chesapeake Bay

BMP Maintenance

Before



After



Local Government Advisory Committee
to the Chesapeake Bay Executive Council

NWF

ALLIANCE
for the Chesapeake Bay

Ellicott City Debris Maintenance Program



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NWF

ALLIANCE
for the Chesapeake Bay

Program Outcomes/Metrics

- Constructed more than 130 projects that treat ~46 acres (~14 impervious acres)
- Planted ~500 trees and installed 120 rain barrels
- ~80 acres of County BMP managed annually
- 53 CBLP-A certificates, 16 Landscapes for Life certificates provided
- Hourly wage increased by, on average, 30%, for participants leaving our programs
- 83 prisoner days avoided at a cost savings of \$11,500

Local Government Advisory Committee
to the Chesapeake Bay Executive Council

NWF

ALLIANCE
for the Chesapeake Bay

Program Contact

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- Executive Director
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- www.howardcoworks.org



4. PA Department of Conservation & Natural Resources Arboriculture Course

Shea Zwerver, PA Bureau of Forestry

Correctional Conservation Collaborative



Stormwater & Green Infrastructure Workforce Development Forum
National Conservation Training Center, Shepherdstown, WV
September 11, 2019

Logos: Pennsylvania Department of Conservation and Natural Resources, treeVitalize, Pennsylvania Department of Transportation, Alliance for the Chesapeake Bay

Logos: Local Government Advisory Committee, NFWF, Alliance for the Chesapeake Bay

Correctional Conservation Collaborative

- Workforce Development Program in Arboriculture, Conservation and Riparian Buffers for Inmates Nearing Release
 - Target Sectors: Tree Service/Riparian Forest Buffer Sectors
 - Job/Career: Tree climber/arborist, Utility companies (line clearance), tree nursery worker, riparian forest buffer technician
 - Target Audience: Incarcerated Individuals
 - Cost/Funding: 2017-2018 = \$0 2018-2019= \$10,000 2019-2020= \$160,000

Objectives/Purpose:

- Provide employable skills to inmates nearing release for industries in high demand
- Create a workforce pipeline of skilled workers for the arboriculture and conservation sectors
- Diversify and elevate the profession
- Empower people to enter into these career pathways
- Reduce recidivism by offering correction education and getting reentrants into good-paying jobs
- Act as a model for other institutions and state agencies
- Assist with rehabilitation through nature interaction
- Elevate interdepartmental and cross-sector collaboration
- Educate those in the labor/trade sectors on environmental conservation and preservation
- Build capacity among communities
- Help PA reach Bay goals by planting RFBs on DOC properties

Logos: Local Government Advisory Committee, NFWF, Alliance for the Chesapeake Bay

No Pre-requisites

- Requirements to enter the program/training: Be incarcerated at participating SCIs
- Requirements to earn certificate/certification: Opportunities to take Pesticide Applicators Certification and Tree Worker Climber Specialist

Logos: Local Government Advisory Committee, NFWF, Alliance for the Chesapeake Bay

Program Content

Arboriculture Program & Tree Tenders

Benefits of Trees & Urban Forestry
Tree Biology
Trees & Soil Relations
Water Management
Tree Nutrition & Fertilization
Tree Identification
Diagnosis and Identification of Tree Pests and Diseases
Tree Pruning and ANSI standards
Tree Installation, Establishment and Preservation
Tree Worker Safety
Tree Cabling, Bracing and Lightning Protection
Tree Risk Assessment
Tree Selection
Tree Climbing

Riparian Forest Buffer Program

Farming 101
Stream Ecology & Aquatic Macroinvertebrates
Plant Identification
Tree Planting: Planting & Sheltering Techniques
Plant Selection
RFB Design
Site Maintenance
Pesticide Application
Small Business Basics & Entrepreneurship
Professionalism & Career Day

Instructors from: Bureau of Forestry, Penn State University, Penn State Extension, DE Forestry Service, Barlett Tree Experts, Conservation Services Inc., NRCS, County Conservation Districts, Native Creations



SCI 'Tree Tenders' help beautify Huntingdon streets





Program Outcomes/Metrics

Reach: 172 Inmates

2 State Correctional Institutions

10 Programs

343 hours of class & field instruction

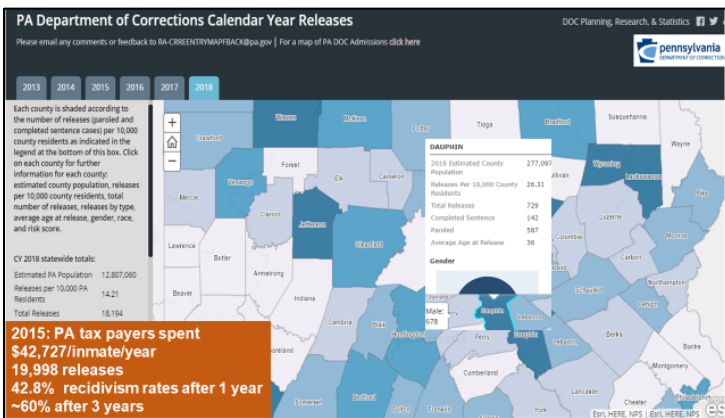
Percentage of those released: TBD

Know of: 3 in job placement: 3 seriously interested

Ranking	County	Rate 2016
1	Jefferson	932.5
2	Philadelphia	865.9
★ 3	Dauphin	685.8
★ 4	Fulton	669.4
★ 5	Lycoming	622.1
6	Venango	570.5
7	Fayette	568.8
★ 8	Wyoming	494.2
★ 9	Lackawanna	487.9
10	Warren	484.7

* Ranking by incarceration rate per 100,000 residents. Note: incarcerated committing county. This rate does not include county or federal inmates.

- 52% of Total Court Commitments in 2016 were between the ages 25-39
- Highest Offenses: Narcotic Drug Laws, Theft/Larceny, Weapons, Other



Program Contact


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Ryan Davis, Alliance for the Chesapeake Bay, Chesapeake Forests Program Manager
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Teddi Stark, PA DCNR Bureau of Forestry/WPC, Riparian Forest Buffer Coordinator
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5. Clean Water Certificate Training Program

Neely Law, Center for Watershed Protection








**CLEAN WATER CERTIFICATE (CWC) TRAINING PROGRAM FOR
WORKFORCE DEVELOPMENT**

Stormwater & Green Infrastructure workforce development
September 11, 2019
Shepherdstown, WV at The National Conservation Training Center

Funding for the program provided by the generous support of the
Keith Campbell Foundation, Prince Charitable Trusts and France-Merrick Foundation











PROGRAM DESIGN













PURPOSE

- Provide the stormwater industry access to an “on the job ready” workforce
- Expand the skilled stormwater industry workforce to help meet the demand for stormwater installation and maintenance
- Increase the opportunities for individuals in low-income communities, under- or unemployed individuals to secure a living wage job leading to financial stability




TARGET AUDIENCE & PRE-REQUISITES

Target Audience

- Under- and unemployed adults in the 18–24 years of age demographic seeking to re-enter or enter the workforce.
- Existing workforce, new to the stormwater industry, or with a desire to move into the stormwater industry employment sector.


Pre-Requisites:

- Participants enrolled or participating in a workforce development program, or currently employed and recommended for program by employer
- Demonstrated ability to physically perform the work through pre-screening or through existing employer




CURRICULUM


CLASSROOM






HANDS-ON ACTIVITIES




FIELD-BASED






▪ 35-hrs
▪ 100% Attendance
▪ Pass Competency Assessments




PROGRAM CONTENT


- 5 Modules
 - Introduction to Stormwater Management
 - Stormwater Best Management Practices (BMPs) Types and Functions
 - Components and Materials
 - Construction and Equipment
 - Maintenance
- Each cohort 8-10 participants for high Instructor-Trainee ratio
- Classroom, hands-on and field-based training

CWC PROGRAM OUTCOMES / METRICS

- Pilot 2017
- 2018 Full Program implementation
- Total Certificates Issued: 33
 - Workforce development: 27
 - Exiting/Incumbant workforce: 6
- Total Job Placement WFD: 75%








CIVIC WORKS' CENTER FOR SUSTAINABLE CAREERS (CSC)



- CSC offers 4 Technical Training Programs
 - Solar Installation
 - Energy Retrofit
 - Brownfields
 - Stormwater Management

CSC PROGRAM STRUCTURE




- Classroom and hands-on training (6 – 8 weeks)
 - Covers job readiness, OSHA construction safety, and industry-specific technical skills
- On-the-job training (3 to 12 weeks)
 - Builds experience working on real industry projects in a supportive environment
- Wraparound case management services (enrollment and post-placement)
 - Covers the areas of transportation, financial, housing, health, legal, benefits, etc)
- Direct job placement
- Retention support (2 years post-placement)





PRE-REQUISITES

- Enrollment criteria
 - Drive, motivation, and commitment to the career field
- Requirements to earn certificate/certification
 - Written and hands-on competency assessments
 - Punctuality and attendance
 - Participation and communication
- Ongoing requirements to maintain certifications
 - Some industry credentials require regular refreshers and/or exams

CSC OUTCOMES/METRICS

2018 Outcomes <ul style="list-style-type: none"> ▪ Enrollment: 117 ▪ Completion: 86% ▪ Placement: 94% 	2015 – 2018 Retention <ul style="list-style-type: none"> ▪ Retention at 6 months: 73% ▪ Retention at Year 1: 83% ▪ Retention at Year 2: 92% 	Wages <ul style="list-style-type: none"> ▪ Wages at Placement: \$15.57 ▪ Wages at 6 months: \$16.06 ▪ Wages at Year 1: \$16.56 ▪ Wages at Year 2: \$17.58
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CWC CONTACT INFORMATION

Neely Law Director of Education & Training Center for Watershed Protection nll@cwpp.org 410-461-8323 ext 3216 http://www.cwpp.org/cwc	Eli Allen Director Baltimore Center for Sustainable Careers eallen@civicworks.com (410) 929-6135 http://sustainablecareers.civicworks.com/	Wellington Bruce Ashe Associate Director Baltimore Center for Sustainable Careers washe@civicworks.com (410) 929-6136
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6. RiverCorps

Josh Burch, DC Department of Energy & Environment





Stormwater & Green Infrastructure Workforce Development Forum
National Conservation Training Center, Shepherdstown, WV
September 11, 2019



River Corps




- 5 month long Green Infrastructure Job Training Program
 - To equip young people in D.C. with the skills and knowledge to
 - Targeted Green Infrastructure Sector (stormwater, energy etc) & job /career
 - DC Young People Ages 18-24
 - \$400,000/year
 - Grantee: Latin American Youth Center











Program Outcomes/Metrics

Annual Programmatic Outcomes: <ul style="list-style-type: none">• 10 Streams Photo Monitored• Invasive Plant Removal• Trash Removal• 25 Bioretention Cells Maintained• 70 RiverSmart Homes Inspections• OSHA 10 & CPR• One acre of native plants	Youth Outcomes: <ul style="list-style-type: none">• 20 Graduates per year• OSHA 10 & CPR• Capstone Projects• Employment & Educational Progress
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Program Contacts

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