Stormwater & Green Infrastructure Workforce Development

September 11, 2019

Local Government Forum Report

February 2020

Forum Overview and Objectives

Background

In the past several years, the Local Government Advisory Committee (LGAC) to the Chesapeake Executive Council has sought insight and understanding of local leaders' water resource priorities, and through additional grant funding from the Virginia Environmental Endowment and the Pennsylvania Department of Environmental Protection, LGAC members hosted a large number of local elected official roundtables in VA and PA to discuss local priorities in the Watershed. A recurring theme heard from local leaders was increasing the *opportunities for workforce development*, and the problem of an inadequate workforce to support the implementation and maintenance of stormwater and green infrastructure best management practices (BMPs). In the 2018 LGAC recommendations letter to the Chesapeake Executive Council, LGAC advocated for the need to support and expand workforce development programs.[1]

In order to understand local communities' workforce development needs and priorities, and following up on LGAC's 2018 Workforce Development Recommendation, the focus of the 2019 Local Government Forum was to provide the Chesapeake Bay Program leadership with more specific recommendations to better meet the workforce needs in communities across the Bay region.

The Forum was hosted by LGAC in conjunction with the Alliance for the Chesapeake Bay (Alliance). Funding for the Forum was provided by the National Fish & Wildlife Foundation (NFWF). The Forum was facilitated by the Alliance's Local Government Programs Director Jennifer Starr, the Alliance's Executive Director Kate Fritz, and Neely Law with the Center for Watershed Protection.

Prior to the Forum, a Backgrounder was sent to attendees that included the initial problem statement, meeting goal, and assumptions. This was done in order to maintain a clear focus for the Forum given the wide-breadth of topics and meaning of workforce development. Participant feedback was requested on these initial drafts during the Forum. The intent was to better understand the needs for workforce development throughout the Chesapeake Bay Watershed and provide resources through case study example programs and initiatives. See Appendix B for the Backgrounder and Appendix C for the Forum Agenda.

The Forum goals were to highlight current programs that **combine meaningful employment, a living wage, and marketable trade skills,** and bring together experts and implementers in workforce development programs across the Bay with LGAC members who represent a diverse group of community leaders. The Forum Planning Team targeted representatives for attendance in order to achieve the necessary cross-section of experiences and points of view and begin a dialogue in order to understand local workforce development needs and brainstorm recommendations for expanding existing models and introducing new and innovative workforce development opportunities in the Chesapeake Bay watershed.

The Forum was held on September 11, 2019 at the National Conservation Training Center (NCTC) in Shepherdstown, WV. A total of 60 individuals attended the 1-day workshop, including 52 participants representing local, state, and federal governments, as well as regional entities, funders, technical assistance providers, and 8 Alliance staff representatives. See Appendix A for a list of Forum participants.

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[1] See Appendix B, Figure 1

The Forum was meant **to identify where gaps of information to fulfill needs may exist with existing programs and showcase successful programs in order to meet the variety of technical and entry level installation and maintenance needs that communities require across the Bay for stormwater management**. This report provides a summary of the Forum, including the research and planning leading up to the day's events, as well as the day's discussions and resulting recommendations.

Pre-Forum Planning

Extensive planning went into developing materials for the Forum that helped structure the discussion and input requested from participants. LGAC staff enlisted a Forum Planning Team[2] to inform materials that included developing the problem statement, a set of guiding assumptions, preliminary recommendations, program resources and a Program Comparison Matrix[3]. This Backgrounder was distributed to Forum participants and allowed everyone to get on the same page for Forum expectations and scope, so that the facilitators could utilize the day for productive discussion and feedback.

The Forum Planning Team held three, one-hour conference calls where their input was taken into consideration, as well as communicated via email to provide extensive input on materials and recommendations and on who should be invited to attend. LGAC staff also held many individual phone conversations with members of the planning team who have led the development and implementation of workforce development programs that were highlighted during the Forum. This helped the Alliance to better understand the workforce development programs that meet a variety of needs regarding the installation and maintenance of stormwater and green infrastructure BMPs. Further, the Forum Planning Team also helped LGAC identify the key barriers to workforce development across the region. The results of the pre-Forum planning that provided a solid framework to initiate discussions to refine and further develop the ideas to inform recommendations.

Problem Statement

Forum participants reviewed the draft problem statement developed by the Forum Planning Team and provided input to refine it based on the wide range of identified local needs, existing programs and resources. The problem statement is directed towards local government. The agreed-up problem statement states:

> *Many local governments have a need for a trained and skilled workforce to implement, operate, and maintain practices to reduce flooding and polluted runoff. Overcoming this problem will help a community to:*
> - *develop the best process to prioritize and effectively maintain best management practices, and*
> - *develop a robust private and public workforce.*
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> *Several excellent workforce development models exist throughout the region and could be adapted and replicated to other parts of the region in order to facilitate growth in the local green economy.*

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[2] See Appendix A
[3] See Appendix D

Discussion

It became readily apparent that the starting point to define the issue(s) or problem(s) to address local workforce development needs differed across jurisdictions. While there is a generally expressed need for workforce development, the demand for the jobs and the type of work varies throughout the Watershed – from highly urban areas to rural communities where the installation and maintenance of best management practices (BMPs) can vary based on those required for permit compliance or to address local water issues such as flooding. The training need discussion was broadened further to include private property owners, such as homeowners that have BMPs installed on their property to reduce fees paid as part of a "rain tax" or "water quality protection charge"[4]. This specific population in the community, however, may be more appropriately addressed through education and outreach efforts within a community that is not related to workforce development.

Participants recognized the linkage between workforce development and local economic development through job creation opportunities and increasing the local tax base as more stable employment opportunities are generated with living wage jobs. Local governments, for example, that have permit requirements to construct and maintain BMPs may create the demand for this work and cultivate a trained workforce. This would involve workforce development in the public sector as well as meeting the needs of the private sector. Specifically, it is common for local governments to use contractors to construct and maintain public BMPs if their in-house capacity or available trained personnel limits their ability to do this type of work.

Central to addressing the workforce development needs, Forum participants debated the benefit of specific skills and knowledge required to meet the local demand for jobs in the stormwater or general water resources field. There is also the opportunity to receive specialized training that may be applied to many different types of industry (e.g. case study by Blue Ridge Community College and emerging technologies). Participants also discussed BMP designs that consider maintenance needs from the beginning phases of their development, requiring a workforce trained in all aspects to include design, construction, maintenance and inspection. The divergence of opinion reinforced the perspective of the different stakeholders at the Forum and the needs within the local community. However, there was agreement on the skills and knowledge to support workforce development be as transferable as possible within the broader water resources sector, specifically for entry-level employment opportunities. This was pertinent to more rural areas, or less densely populated areas where the public workforce (e.g. maintenance divisions of public works departments) perform a more wide-range of services with smaller staff size.

Assumptions

Workforce development is a broad topic that involves many partners and varying local demand for work and the supply of workers to meet the demand, both in the public or private sector. Recognizing the diverse local needs for workforce development, participants were provided a set of assumptions to review and provide feedback to reflect their local considerations. The initial set of assumptions is provided in Appendix B as part of the Background information provided to Forum participants. Below is the set of assumptions considered and adjusted by the Forum participants to guide the discussion for the remainder of the Forum and inform recommendations are provided below:

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[4] Montgomery County, MD

- Training opportunities exist for entry level opportunities, yet they are not evenly distributed. These types of programs not only train individuals on basic skills, but have a multitude of social goals including supporting underemployed populations, providing life skills and case management support to help with job readiness skills.
- Training for more technical skills to support larger stormwater and green infrastructure installation and maintenance projects exist, and will be the one of the focuses of this Forum as we seek examples to adapt and expand these types of programs in regions where there are gaps in the availability of programs.
- **Trained workforce would be hired locally.**
- Local needs vary depending on many factors. There is no one stop shop solution for workforce development that can be applied across the Chesapeake Bay Watershed. For example, the type of job/career and training required for individuals may go beyond technical skills and knowledge and requires life skills or job readiness skills. This is dependent on the needs of individual communities.
- When focusing solely on stormwater or green infrastructure maintenance, there may not be enough jobs available to support a dedicated training program. **When expanding focus to other sectors (wastewater, drinking water, etc.), there are more opportunities to support jobs.**
- Practices that are eligible for nutrient and sediment reduction credit for the Chesapeake Bay TMDL are a priority over other types of projects applicable to growing a green workforce.

Local Needs Identification

Based upon discussion at the Forum, there are four key areas of local needs identification.

Identify funding mechanisms

The recognized need for a workforce development program to install, operate, and maintain practices to reduce flooding and polluted runoff caused the general question, "How are we going to pay for it?". There is varied capacity, both staff and financial, of local governments and programs available to offer the workforce development training. The existing training programs that are available in a community may not include a program specific to the stormwater industry or water resources; similarly, with public (State) funds to support development them. As funding is a well-recognized barrier to program development, participants recognized the need to better coordinate with existing services and programs. A number of funding opportunities were suggested including:

- develop public-private partnerships;
- collaborate with neighboring communities to develop a regional training program;
- expand existing programs compared to starting new programs;
- add new training tracks/programs;
- work with community colleges;
- define the need for program development with workforce development boards; and

- expand existing programs with non-profit organizations that deliver or provide workforce development and training[5].

Generating support for this type of public investment will require community-wide and political support that may include educational elements on the value and role of BMPs for green infrastructure in the community. For example, a lack of understanding of a bioretention practice that has not been maintained and is overgrown with weeds or invasive species, or absent of vegetation altogether, can generate a lack of public support for future implementation of practices in public areas – such as parks or neighborhoods. Financial support to invest in training and maintenance of BMPs may begin with describing the need to invest in these practices for the dual purpose of proper function of the BMPs need to clean local waterways or reduce local flooding, for example, while creating jobs to the public.

Invest in community & human capital to create a successful workforce

Forum participants reiterated a very basic economic model or understanding of local economic development in support of workforce development. That is, **job creation that supports living wage jobs infuses money into the local economy**. As such, strategic development and implementation of workforce development programs that address local workforce and community needs help to support broader societal goals as well. An individual who secures a living wage job and has the job-readiness skills and knowledge required for that work, has an opportunity to address poverty, unemployment and recidivism issues. Local government that adopt regulations supporting sustainable or "green" development, increasing green or open spaces that are accessible to communities, can create the demand and work for the private sector to help achieve these goals.

The influence of government policies and programs such the procurement process, can have a direct economic impact on local industry for hiring contractors. Forum participants noted the benefits and challenges of procurement where additional requirements may create a more cumbersome process, and also lead to an elevated profile for this work in the community. The costs to recover the credentials required for hiring are to be considered. The specifications for local hiring and workforce credentials facilitate the adoption of standards in the stormwater or broader green infrastructure industry that influence pay scales and career pathways. Jobs that pay a living wage with opportunity for career advancement may increase job retention, along with continued training opportunities. A need for high level, or specialized training as entry level positions grow may also lay the foundation to support public-private partnerships in the future.

Build a job training model that can be replicated

The Forum participants expressed a wide range of workforce development needs, some of which were not well understood and require further assessment. While there isn't a one-stop shop for workforce development training in the stormwater sector, there are a variety of existing programs. It would be helpful for the Chesapeake Bay Program, or other organization, to develop a basic framework for workforce development program based on the needs identified by communities throughout the Chesapeake Bay Watershed, along with existing training programs. As a start, a table summarizing a few

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[5] See Case Studies for example programs and organizations

of the programs with basic criteria was included as part of the Backgrounder information to participants and could be more fully developed.

Revitalize & reinvest in physical infrastructure

The need for workforce development addresses a twofold need:

1. Aging demographic of the public works workforce	2. Aging physical (drainage) infrastructure of urban cities

There is necessary maintenance for existing BMPs of all types along with the roads and drains that connect to them. As such, the need for workforce development should also include on-going training of existing public works staff and "why" this is important, and "how" to do it.

Case Study Examples of Workforce Development Programs

A set of seven case study examples of workforce development programs in the Chesapeake Bay Watershed was presented at the Forum with a summary of their key attributes provided in Appendix D. The programs illustrate the different models for workforce development that are developed and/or delivered by community colleges, non-profit organizations, non-profit Conservation Corps/workforce development organizations, professional associations and government agencies. The credentials offered by these programs are a certificate or certification; each credential provides different requirements to maintain the credential by the individual. The programs are largely funded through public or private foundation grants, and, or program fees.

Collectively, these programs are making an impact on the local workforce with each individual that successfully completes the programs and secures a job. Appendix D provides a summary of the individual program metrics and outcomes.

Chesapeake Bay Landscape Professional (CBLP) Certification Programs
Beth Ginter, CBLP Coordinator
Website: https://cblpro.org/

The CBLP is a voluntary certification program for professionals in Virginia, Maryland, Pennsylvania and the District of Columbia who design, install, and maintain sustainable landscapes. The credential training and examination are based on a core set of standards in sustainable landscaping emphasizing stormwater retrofit best practices and conservation landscaping with native plants to benefit the environment. There are two levels of training that focus on landscape professionals, an Associate program for the youth workforce and a pilot entry program initiated in 2019 for maintenance crews.

Blue Ridge Community & Technical College (CTC)
Cynthia Hull-Miller, Blue Ridge CTC
Website: https://www.blueridgectc.edu/

Blue Ridge CTC offers specialized training programs that are part of the College's course offerings. The length of the training is based on credit hours and/or degree programs that specify course requirements for each program. Each of the programs are designed to meet identified job or career paths. The three programs highlighted at the Forum include:

- Environmental Science Technical Program
- Applied UAS (unmanned aircraft systems) Technologies
- Applied Laboratory /Quality Assurance Technicians

Howard EcoWorks
Lori Lilly, Howard EcoWorks
Website: www.howardecoworks.org

Howard EcoWorks provides three programs to train individuals on the construction and maintenance of small-scale green infrastructure practices, in addition to stream restoration. Each of the programs focus on a different target audience to include:

- READY that is a summer workforce program for young adults aged 16-25 years old.
- UpLift an adult workforce program that targets under-served populations that is 9-10 months in lengths for entry level jobs. There are no prerequisites and the curriculum include the CBLP-Associates certificate.
- Seeds of Change is a workforce development program offered at the Howard County's Corrections Department that develops inmate skills and knowledge to maintain a native plant nursery. The program is six-weeks in length with no-prerequisites and participants receive a Landscape of Life certificate.

Pennsylvania Department of Conservation & Natural Resources Arboriculture Course
Shea Zwerver, PA Bureau of Forestry
Website: https://www.dcnr.pa.gov/Pages/default.aspx

The Correctional Conservation Collaborative is a workforce development program in Arboriculture, Conservation and Riparian Buffers for inmates nearing release. The targeted job sectors include tree service in the riparian and forest sectors. The focus area was identified, in part, based on the riparian buffer projects planned in the region with multiple job types: tree climber/arborist, utility line clearer, tree nursery worker, and riparian forest buffer technician. There are no educational or work experience pre-requisites. The program presents an opportunity for participants to take Pesticide Applicators Certification courses and become a Tree Worker Climber Specialist.

Clean Water Certificate (CWC) Training Program
Neely Law, Center for Watershed Protection
Website: https://www.cwp.org/cwc/
The CWC Training Program is a certificate program that provides basic skills and knowledge for adults to secure an entry-level job in the stormwater industry. The certificate program serves as a foundation for additional credentials. The program is also applicable to the existing workforce who seek to acquire

these skills to expand their career pathways or expand their existing responsibilities. The goals of the CWC training program are to:

- 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, and
- Increase opportunity for individuals in low-income communities and under or unemployed individuals to secure a living wage job leading to financial stability.

The program is implemented on a contractual or fee for service model where the CWC training is integrated with existing workforce development programs that provide life skills and support services to program participants, creating a pathway for local businesses to hire these individuals into living wage careers following successful completion of the CWC training program.

RiverCorps
Josh Burch, District of Columbia Department of Energy & Environment (DC DOEE)
Website: https://www.layc-dc.org/what-we-do/job-readiness/green-jobs-training/

The RiverCorps Program is funded through the DC DOEE and implemented through a local Conservation Corps Program, Latin American Youth Center (LAYC). LAYC offers job training in green infrastructure and conservation to residents of Montgomery County and the District of Columbia. The programs provide field experience and classroom instruction and may include job readiness training, certifications, and career development opportunities. It is a five-month long green infrastructure job training program. The target audience are young adults ages 18-24 years and seeks to build the next generation of environmental stewards.

Recommendations

1. ***LGAC recommends that the Chesapeake Bay Program (CBP) partners charge each state or region (more localized) with conducting a needs assessment around the demands of the stormwater and related industries to implement, maintain and inspect BMPs and supply of the workforce.***

A recurring theme early-on at the Forum was to determine the need for workforce development in a community. Community needs for workforce development will vary based on size and demographics, the types of stormwater and green infrastructure BMPs that need to be installed and maintained, and the target population that the program is trying to reach, among other differences. An example needs assessment is provided in Appendix G. In this example, community colleges are required to provide justification or rationale for adding a new training program. Workforce development and training programs that are supported by certain types of grants (e.g. Department of Labor) are required to report job placement and/or be associated with demonstrated pay increases. Therefore, it is critical to ensure that the training is well funded, clearly defines the customer or recipient of the workforce development program and that it meets the needs of the targeted learners as well as the employers and their hiring capacity.

2. ***LGAC recommends identifying the components of workforce development programs that create a successful job pipeline and work to replicate them in other programs as they are developed. Two specific strategies are (1) to connect training programs with the businesses and public agencies and build a relationship from the get-go, and (2) encourage public agencies to include credentials such as certificate or certification criteria in job descriptions.***

A locally developed workforce development program should connect with local employers. This may also include retraining of existing employees which may be more pertinent in rural areas where contractors specialized in this area of work are not as accessible compared to more urban areas. There should be a strong effort to ensure there is a training-to-job pipeline in either case. Some training programs, like Civic Works' Baltimore Center for Sustainable Careers, have built partnerships that lead to a highly successful training-to-job placement pipeline; but many programs struggle with this issue. Overall, a workforce development program or training should provide ready access to an employer network along with support services to facilitate success of individuals seeking a living wage job in this industry. Job placement may also be a requirement for grant funding that supports these programs. It is recommended to improve coordination between local workforce development boards and local government to address this specific employment sector. Examples include local Workforce Development Boards, community colleges, Conservation Corps programs and other non-profits. Case study examples of success stories showcasing programs and individuals would help to broaden the understanding of how the different programs and partnerships work in different communities.

Additional components of a model framework for workforce development programs are to provide job readiness skills and wrap-around services that support an individual's re-entry into the job market. The demographic profile of targeted individuals for workforce development may identify barriers to employment – from criminal background to transportation and childcare - while also nurturing fundamental communication and workplace conduct. Local employers may take advantage of federal and, or state tax credits for hiring targeted groups who are consistently faced with barriers to employment. The return on investment in training and providing living wage jobs is also a benefit compared to cost of recidivism or incarceration.

3. ***LGAC recommends that transferable credentials across the Watershed should be developed in order to be most valuable to standardize the base requirements needed.***

The "green economy" includes a diverse type of employment in the sectors of energy, water and vegetation management. There are multiple types of jobs within each of these industries requiring specialty or expert knowledge. **Credentials that meet the needs of the employment sector and employers is paramount.** Credentials may be either certificate or certification programs where each type has different requirements for individuals to achieve and maintain. The credential should consider individuals entering the workforce along with the existing workforce. Forum participants supported the development of programs where the credentials would be stackable or build upon one another to support a career pathway and transferable to other sectors.

4. *LGAC recommends the Chesapeake Bay Program consider promoting policy and incentives that support the installation, inspection, maintenance, and enforcement of green infrastructure, creating job opportunities to fill these roles.*

The demand for workers in the stormwater or water resources industries should drive the need for workforce development programs. Local governments may play a critical role to develop this demand through land development policies and incentives through the procurement process. Further, the private sector has a strong understanding of the market needs and therefore, at a minimum it is recommended to develop an understanding of how both the public and private sector may contribute to job creation. While job creation and economic development may be leading goals of both sectors, the installation and maintenance of BMPs will also support other broader community public goals that should be communicated to generate broader understanding for their needs and role in promoting quality of life. Contracting can be key mechanism to determine the ultimate goals of BMPs or green infrastructure projects depending on the context in which they are constructed (e.g. single project to meet the TMDL or a part of community sustainability goals). The context can have implications on the metrics used to evaluate contract bids that look at the lower cost or are performance based or maximize benefits to the community. Lastly, in the near future, the need for maintenance will take a more prominent role local stormwater programs as verification of BMPs for Chesapeake Bay TMDL credit are required.

While the set of these recommendations focus on local governments, participants stated the need to work together with federal and state agencies to achieve the recommendations. Participants encouraged Watershed Governors to play a role in connecting local government with the business sector to develop programs and training to meet local needs and support work to improve the health of the Chesapeake Bay.