Virginia Association of Counties

ACHIEVEMENT AWARDS

APPLICATION FORM

All applications must include the following information. Separate applications must be submitted for each eligible program. **Deadline: June 1, 2018.** Please include this application form with electronic entry. If you do not receive an email confirming receipt of your entry within 3 days of submission, please contact Gage Harter.

PROGRAM INFORMATION

County: Fairfax County

Program Title: Revitalize, Restore, Replant!

Program Category: Environmental

CONTACT INFORMATION

Name: Danielle Wynne

Title: Ecologist III

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Email: danielle.wynne@fairfaxcounty.gov

SIGNATURE OF COUNTY ADMINISTRATOR OR DEPUTY/ASSISTANT COUNTY ADMINISTRATOR

Name: Craig Carinci

Title: Director, Stormwater Planning

Signature:

Proposal for 2018 VACo Award: Fairfax County Department of Public Works and Environmental Services

Program Title: R3 – Revitalize, Restore, Replant!

State the problem, challenge or situation faced by the locality and how the program fulfilled the awards criteria (innovation, partnering or collaboration and a model for other localities). Tell how the program was carried out, including financing and staffing, and the program's results.

The *Revitalize, Restore, Replant!* (R3) program transforms existing stormwater facilities on Fairfax County Public School (FCPS) campuses into real-world teaching tools. In this free-of-charge program, stream ecologists from the Department of Public Works and Environmental Services (DPWES) in Fairfax County, Virginia introduce students to stormwater and watershed ecosystems management through hands-on native plant installations in existing bioretention or dry pond facilities. Plant species are chosen to complement existing Commonwealth of Virginia Standards of Learning requirements. The goal of the program is to encourage students and teachers to use their local stormwater management facility as a long-term outdoor learning classroom without leaving their campus.

In an area as urbanized as Fairfax County, VA, there are thousands of stormwater management facilities throughout our landscape that are designed to reduce the impact of stormwater runoff on our stream systems. Almost 280 of these facilities are on Fairfax County Public School (FCPS) campuses. Often, these facilities are considered nuisance areas - unexplained depressions in the land that are visually unappealing, when in fact they provide a strong ecological benefit to our local stream ecosystem and

ultimately the Chesapeake Bay. Some bioretention or dry pond facilities within FCPS are infiltrating correctly but lack the native vegetation layer to provide additional nutrient and water uptake. Revitalizing these facilities through replanting provides additional environmental benefits plus allows the students and teachers to literally get their hands dirty to learn how these facilities work and about the benefits of plants to our ecosystem.

Figure 1 - Student at R3 Planting Event

The *Revitalize, Restore, Replant!* (R3) program grew from a desire to change the perception of stormwater management facilities on public school campuses from purely functional to educational. The intent of the program is to not only improve the functionality of these facilities through installation of native plants for uptake of excess nutrients and water, but also to create an outdoor learning classroom opportunity for students to be used for years to come. The R3 program is a win-win-win collaboration as it provides DPWES with an outreach and education opportunity to foster the connection between students and their environment, provides upkeep above and beyond the level of service that typical maintenance can provide, and gives students and teachers the opportunity to make local ecosystem connections in their backyard using a non-traditional teaching experience. This innovative educational opportunity is free of charge to the entire school system, including Title I designated schools.

Both bioretention facilities and dry ponds work by collecting stormwater runoff into a single area and treating the water by infiltration through a top layer of plants and soil. The plants absorb some water

and nutrients through their root systems, while the rest drains into the soil. The soil acts as a natural filter removing pollutants from the water before it enters our streams. The R3 program focuses on bioretention facilities and dry ponds that still have adequate infiltration, but do not have a full native plant cover. Maintaining a full native plant community at each facility is beyond the level of service that can be provided by DPWES.

Initially, the program sprouted out of need at Mantua Elementary School located in Annandale, Virginia. Because some of the school's stormwater facilities were undergoing a renovation, the remaining facilities did not receive their normal maintenance of invasive plant removal. One facility in particular was taken over by invasive grasses. Though the facility still provided stormwater management benefits through infiltration, the water quality value of the facility was reduced. Staff from Mantua and DPWES organized a planting event in April 2017 in which three 5th grade classes installed 500 native plants within the 300-square footprint of the bioretention. The event was a huge success. Students and teachers learned about their local watershed, how native plants are utilized and how the facility protects our streams from Fairfax County all the way down to the Chesapeake Bay. By installing the plants themselves, the students made a personal connection to the site thus recognizing how protecting our environment is everyone's responsibility.

DPWES uses a block method planting plan for these events: the facility is sectioned off into large areas based on the number of plant species to be installed. While this is a non-traditional approach to planting, forming blocks provides an "either/or" method of weeding ("If it's not this plant, then it's a weed"). Since students and teachers assist with the weeding during the school year, this method is easy to follow and allows students to make direct connections between plant names and what they look like. Plant holes are also pre-drilled by DPWES staff to ensure that the plants are installed in the correct

Figure 2 - Plant Identification Sign

location and density. This allows the students to spend more time on installation versus digging holes. Once the planting is complete, DPWES provides planting signs to be placed within the facility to help students identify the different species.

Once the planting was completed, the next question was "Now what?" In order to turn the planting project into a program, DPWES is writing fact sheets with the assistance of FCPS curriculum writers that will connect Fairfax County Program of Studies to the planted facility, to encourage the continued use of the facility beyond a one-day planting event. Bringing students outdoors to engage in non-traditional learning environments helps connect the curriculum to real world experiences. The facility is now a fully functional teaching tool that can be used to teach everything from *Understand that Plants and Animals Change, Have Life Cycles and Die* (Kindergarten), to *Investigate and Understand Physical Adaptations* (Grade 3), all the way to *Understand the Importance of Protecting and Maintaining Water Resources* (Grade 6). An example of the Grade 4 fact sheet is provided with this submittal.

Understanding the influence of human activity on the ecosystem is frequently discussed throughout the elementary school curriculum. The R3 program is an ideal way to show students and teachers how the growing field of stormwater management utilizes a variety of methods to help protect and restore our vital natural resources through implementation of a structural practice in the landscape. Because a majority of the functional components in a bioretention or a dry pond are underground, it can be difficult for a layperson to understand how these facilities are managing stormwater runoff. We are

using the technology of stormwater management to engage and educate students and teachers about their local environment and downstream to the Chesapeake Bay.

While the program is free-of-charge to FCPS, there is some cost incurred by DPWES. Native plants cost an average of $8 per square foot. These facilities are planted at a higher density than what would traditionally be done in a maintenance activity. However, the additional cost of the materials is offset by the reduction in contractor labor fees for plant installation. Materials such as gloves, trowels, augers and shovels are purchased once and reused at each event. While the county incurs additional cost for the program installation as well as the cost of staff time, the educational outcome of the program greatly outweighs the money put into it.

The *Revitalize, Restore, Replant!* program has been tremendously successful. More than 4,700 native plants have been installed by 860 students to date.

The success of a partnership can be achieved only if both groups benefit. The following are three reviews of the program from the teacher's perspectives:

The Revitalize, Restore, Replant! (R3) program has significantly contributed to our school campus by allowing our students to participate in the restoration of our shared space. Our school has a strong focus on watershed education and restoration so the R3 program is a natural fit. I think it's important for other schools and organizations to strive to improve their land and our watershed through the education and action provided in this partnership with our county. Ryan Chrusch, Watershed Teacher, Lorien Wood School.

When the environment thrives, we thrive. Working on environmental projects is so energizing and meaningful. Our bioretention basin replanting provided a special opportunity to engage the students -

they learn so much as citizen scientists, enjoy the hands-on aspects, and truly feel that they have an important stewardship role to play! Michele Sullivan, Science Specialist, Mantua Elementary School.

Students in grades 3, 4 & 5 at Braddock Elementary, participated in an amazing "real world / real life" learning experience with the Fairfax County office of Storm water/ Watershed Outreach that made numerous cross curriculum connections (Reading, Writing, Mathematics, Science and Technology). In a school with over 850 students, 90% minority, 80% poverty, 38 different countries and 24 different languages, students came together to make a difference in their community and learned the importance of taking care of their water source. The bio-retention project at Braddock Elementary was a true Community Service focused learning experience. We are so grateful to the members of Fairfax County Storm water / Watershed outreach for providing the opportunity to Make A Difference in our community! Joyce Matthews, Science Specialist, Braddock Elementary School.

Lastly, a few quotes from the students' perspective:

"I had never planted anything before."
"I now understand the importance of taking care of the watershed."
"It was so much fun learning how we can take care of our water source."
"We had so many plants! I was so surprised about how they could clean water."'
"I think it is really interesting how plants will clean the water."
"We have a special area behind our school that collects rain water." -Students at Braddock Elementary School

We have seen a significant increase in program interest from just this past year. In spring and fall of 2017 we had three schools with 280 students planting 1,800 natives. Just this spring 2018 we've led 6

Revitalize, Restore, Replant! programs involving 5 schools who increased our native count by 3,000 and engaged an additional 580 students. The first R3 of the season was to revisit Mantua ES, where it all began, to complete a second Stormwater bioretention transformation. They have several facilities surrounding their campus like many other schools in Fairfax. There is no doubt that we will be returning next season to continue to revitalize, restore, replant, and educate the grades to come. This year, Michele, Science Specialist at Mantua Elementary School, told us her students created a garden club that dedicates their time after school to weeding and tending to the bioretention. This demonstrates that the program has not only sparked student interests during school but, has begun to sprout outside of the classroom. On their own time, students are choosing to take responsibility and action to impact their watershed because of this planting experience.

The *Revitalize, Restore, Replant!* program offers a new service to Fairfax County Public Schools by connecting students to a real-world application of science presented by specialists in the field, while at the same time adding beauty and functionality to their campus. Students who participate in the program expand their working knowledge of watershed science, practice scientific thinking skills, and can make connections between behaviors and environmental impacts. Fairfax County benefits from this increasingly educated community. The program is low cost but high gain. It can easily be expanded upon and replicated to meet the needs of other jurisdictions across the country. Currently we are looking to expand it amongst other counties in the state such as Arlington, and cities such as Fairfax.

Include a short overview of the program (no more than one page double-spaced) that can be used as a quick reference guide for judges.

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County, Virginia introduce students to stormwater and watershed ecosystems management through hands-on native plant installations in existing bioretention or dry pond facilities. Plant species are chosen to complement existing Commonwealth of Virginia Standards of Learning requirements. The goal of the program is to encourage students and teachers to use their local stormwater management facility as a long-term outdoor learning classroom without leaving their campus. Using guided questions designed by stream ecologists, teachers are provided grade-specific lesson plans to help connect Fairfax County Program of Studies materials to the facility. R3 is a win-win-win collaboration as it provides DPWES with an outreach and education opportunity to foster the connection between students and their environment, provides a cost-effective opportunity for upkeep above and beyond the level of service that typical maintenance can provide, and gives students and teachers the opportunity to make local ecosystem connections in their backyard using a non-traditional teaching experience. Response to this program has been overwhelmingly positive from both teachers and students.

Include a brief summary of the program (3-4 paragraphs) that could be used for press releases, brochures, etc.

Fairfax County Stormwater Planning Division has developed the *Revitalize, Restore, Replant!* (R3) program that transforms existing stormwater facilities on Fairfax County Public School (FCPS) campuses into real-world teaching tools. In this free-of-charge program, stream ecologists from the Department of Public Works and Environmental Services (DPWES) in Fairfax County, Virginia introduce students to stormwater and watershed ecosystems management through hands-on native plant installations in existing bioretention or dry pond facilities. Plant species are chosen to complement existing Commonwealth of Virginia Standards of Learning requirements. The goal of the program is to encourage students and teachers to use their local stormwater management facility as a long-term outdoor learning classroom without leaving their campus.

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To date, we have seen a significant increase in program interest from just this past year. In spring and fall of 2017 we had three schools with 280 students planting 1,800 natives. Just this spring 2018 we've led six *Revitalize, Restore, Replant!* programs involving five schools who increased our native count by 3,000 and engaged an additional 580 students. The first R3 of the season was to revisit Mantua ES, where it all began, to complete a second stormwater bioretention transformation. They have several facilities surrounding their campus like many other schools in Fairfax County. There is no doubt that we will be returning next season to continue to revitalize, restore, replant, and educate the grades to come. This year, Michele, Science Specialist at Mantua Elementary School, told us her students created a garden club that dedicates their time after school to weeding and tending to the bioretention. This goes to show that the program has not only sparked student interests during school, but has begun to sprout outside of the classroom as well. On their own time, students are choosing to take responsibility and

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