# PRINCE GEORGE'S SOIL CONSERVATION DISTRICT 2017 ANNUAL REPORT

**LAND PRESERVATION**

BY JEANINE NUTTER

## AG LAND PRESERVATION HIGHLIGHTED IN PRINCE GEORGE'S COUNTY

April 20, 2017, the Prince George's Soil Conservation District celebrated Ag Land Preservation in Prince George's County at the 43rd annual cooperator dinner. Those landowners in attendance with preserved farms were presented with "Preserved Farmland" signs to be displayed on their property. The Prince George's Soil Conservation District began administering Ag Land Preservation for Prince George's County in 2007. A total of 58 properties, for 5,500 acres, have been permanently preserved. There are several options for land preservation in the county. Programs available include the Maryland Agricultural Land Preservation Foundation (MALFP), Historic Agricultural Resource Preservation Program (HARPP) and the Rural Legacy Program (RLP). All of these programs purchase development rights and place a conservation easement on the property. To date, 36 properties have been preserved thru HARPP for 3,339 acres, 18 properties thru MALPF for 1,651 acres and 4 properties thru Rural Legacy for 510 acres, totaling 58 easements for 5,500 acres.


**INSIDE THIS ISSUE:**


| | |
|---|---|
| EDUCATION & OUTREACH | 2-5 |
| AGRICULTURAL ACCOMPLISH-MENTS | 6 |
| DAM SAFETY | 7 |
| URBAN AGRICULTURE | 8 |
| PORTABLE XRF ANALYZER FOR URBAN AG | 9 |
| RENTAL EQUIPMENT | 10 |
| AG BMP LOAN/ RECYCLING/ TOYS FOR TOTS | 11 |

# EDUCATION AND OUTREACH

## PRINCE GEORGE'S SOIL CONSERVATION DISTRICT AIDS WITH GREEN SCHOOL CERTIFICATION

BY: JAMES ROBERSON, INSTRUCTIONAL SPECIALIST FOR ENVIRONMENTAL LITERACY, DEPARTMENT OF ENVIRONMENTAL EDUCATION, WILLIAM S. SCHMIDT CENTER

Under the leadership of the Prince George's County Public Schools' (PGCPS) CEO, Kevin Maxwell, the school district has set a goal for all 208 schools to become certified as Maryland Green Schools. The William S. Schmidt Outdoor Education Center (Schmidt Center) has taken the lead on this initiative and is working directly with schools on certification. The approach is to work directly with schools establishing Green Teams consisting of teachers, students and support staff that wish to take on the MD Green School certification. The Green Team committees work with certified Green Leaders on the three objectives, Systemic Sustainability, Student Driven Sustainable Practices, and Community Partnerships over the two year certification period. Certified Green Leaders include staff members of the Schmidt Center, Alice Ferguson Foundation, Anacostia Watershed Society, Maryland-National Capital Park and Planning Commission, Prince George's Soil Conservation District, Prince George's County Department of Environment, as well as other non-profits and county offices.


Envirothon students and teachers learn about soils.

Currently, 92 schools (44%) are certified as MD Green Schools within PGCPS and approximately 20 new schools are applying in March of 2018. PGCPS has the greatest number of MD Green Schools in the state.

The Prince George's Soil Conservation District will support the efforts of the PGCPS in 2018 by providing assistance in application completion by schools, and providing recycle containers to four schools, three of which are located in TNI neighborhoods.

# EDUCATION AND OUTREACH

## ENVIROTHON: BY DEBBIE SANDLIN

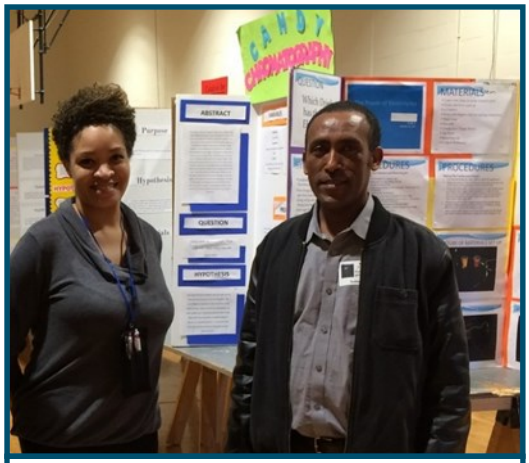
Dean Cowherd , USDA NRCS Soil Scientist, teaches students soil profiling.

On April 25, 2017, the Prince George's Soil Conservation District and the Prince George's County Public Schools hosted nearly 80 students from 10 county schools for the annual Prince George's County Envirothon at the William Schmidt Outdoor Education Center in Brandywine, Maryland. This annual high school level event combines "hands on" experiences, testing and teamwork on environmental issues. The winning team, led by Ms. Peggy Brosnan, was from Eleanor Roosevelt High School. Prince George's County was well represented at the state competition held at Camp Pecometh on Maryland's Eastern Shore, June 15-16 placing 5th overall. Sixteen teams from across the state participated, and the top team earned the right to represent Maryland at the national competition. The top ten teams at the National Level earn scholarships made possible through various sponsors. The experience is invaluable and each year the District strives to reach more students. Past County Envirothon students have chosen careers in the environmental field. In addition to sponsoring the event, the District offers scholarships for local winning team members. Since 2013, we have awarded $22,000. For more information on the Envirothon, or if you wish to participate or support this program, please contact our office.


Eleanor Roosevelt High School Envirothon team wins County Envirothon, and represented Prince George's County well at State competition in June. Pictured L to R: Rosemary Iwuala, Yeganeh Dastani, Lorenzo Duldulao, Alexis Yaculak, Ben Hong, teacher sponsor Peggy Brosnan .

# EDUCATION AND OUTREACH

## PGSCD AT THE SCIENCE FAIR : BY EUGENE WHITEHEAD



*Suitland HS teacher, Ireneo Abadejos, with Urban engineer Kebede Shihamit.*

In 2017, the Prince George's Soil Conservation District (PGSCD) continued its commitment to community involvement by participating in extracurricular programs at two Prince George's County schools.

Two members of the urban review staff, Kebede Shihamit and Gene Whitehead, traveled to Suitland to serve as judges for the Annual STEM (Science Technology Engineering Mathematics) Fair at Suitland High School. They each reviewed and scored more than 20 projects completed in grades 9 through 12, including the International Baccalaureate program, in the environmental and engineering categories. Joined by professionals from other schools as well as County and Federal agencies, the PGSCD judges were invited to provide feedback on how best to improve upon the program.

In another endeavor, PGSCD contributed two judges to the Bowie High School Science Fair. Joseph Haamid, former NRCS District Conservationist, and urban engineer Gene Whitehead took part in judging the technology and environmental entries.

Student presenters personally explained the process by which they developed and executed their projects to each judge. The presence of teachers, judges, presenters and student observers alike during the evaluation session resulted in a vibrant atmosphere approaching that of an actual science conference.

Our judges thoroughly enjoyed the interaction with Bowie High School's engaged students and science teachers.

We at the District greatly appreciate opportunities like these, in which we get to encourage science participation and scientific skill acquisition by the young people of Prince George's County. The benefits are well worth the time invested.

*Urban engineer Gene Whitehead evaluates Bowie HS student's presentation.*

# OUTREACH AND EDUCATION

## DISTRICT SUMMER YOUTH/INTERNS PARTICIPATE IN UNIVERSITY OF THE DISTRICT OF COLUMBIA VANSVILLE CAMPUS TOUR AND GLEANING

# AGRICULTURAL CONSERVATION ACCOMPLISHMENTS

BY DIANA LAGUNES

| PLANNING ACTIVITIES | CONSERVATION APPLICATION |
|---|---|
| New Cooperators (10) 427 ac. | Farmers Applying BMPs 43 ea. |
| New Farm Plans (12) 1,869 ac. | BMPs Installed on Farms 167 ea. |
| Revised Farm Plans (25) 2,353 ac. | Acres Receiving Treatment 4393 ac. |
| Total Plans (37) 4,222 ac. | Estimated Tons of Soil Saved 1615 tons |

## BMP Fundig Sources

| FUNDING SOURCE | BMPS |
|---|---|
| MACS Capital Projects 7 ( Agreements) | 14 |
| MACS Cover Crop 14 ( Farmers) | 1626 ac. |
| USDA-EQIP 9 / CBW1 1 ( Contracts) | 10 |
| Farmer/ landowner funded | 143 |
| TOTAL BMPs Applied | 167 |

## Equipment Rental Program

| EQUIPMENT TYPE | FARMERS | ACRES |
|---|---|---|
| No-till Drill (10') OLD | 12 | 242 |
| No-till Drill (10') NEW | 4 | 316 |
| No-till Drill (6') | 13 | 79 |
| Pasture Aerator | 0 | 0 |
| 5 ton Lime Spreader | 3 | 105 |
| Post Pounder (# of posts) | 10 | 600 posts |
| Manure Spreader | 2 | 10 |
| Sub-soiler | 1 | 5 |
| Vicon Fertilizer Spreader | 2 | 15 |

## Best Management Practices Applied

| PRACTICE | AMT APPLIED | PRACTICE | AMT APPLIED |
|---|---|---|---|
| Winter Cover Crop | 1626 ac. | Residue & Tillage Management | 1,706 ac. |
| Filter Strip | 7 ac. | Stream Crossing | 1ea. |
| Nutrient Management | 180 ac. | Fence | 3,000 ft. |
| Nutrient Mgmt. Plans Written | 3 ea. | Conservation Crop Rotation | 473 ac. |
| Pasture/Hay Land Planting | 207 ac. | Field Border | 3,280 ft. |
| Forage Harvest Management | 140 ac. | Roof Runoff Structures | 6 ea. |
| Critical Area Planting | 68.9 ac. | Underground Outlet | 640 ft. |
| Conservation Cover | 31 ac. | Livestock Pipeline | 220 ft. |
| Riparian Forest Buffer | 16.9 ac. | Stream Crossing | 1 ea. |
| Grassed Waterway | 0.2 ac. | Watering Facility | 1 ea. |
| Obstruction Removal | 5.0 ac. | Structure for Water Control | 1 ea. |

## DAM SAFETY

BY: JULIE MILLER, URBAN ENGINEER

In early November, District Urban staff attended a "Dam Failures and Lessons Learned" workshop hosted by Maryland Department of the Environment (MDE)-Dam Safety Division and presented by the Association of State Dam Safety Officials (ASDSO). The workshop primarily focused on the evolution of dam construction and the lessons learned over time such as dam seepage, overtopping and dam breaches. The importance of routine dam maintenance and regular dam inspections were emphasized to ensure the integrity of the structure and for the purpose of notifying the appropriate authorities if inconsistencies are observed.

Shortly after the workshop, Charles Soil Conservation District (Charles SCD) staff invited the Prince George's Soil Conservation District (PGSCD) urban staff to attend their annual dam inspections. Each year Charles SCD and Charles County Government are responsible for inspecting the three flood control dams in Charles County. It was a great exercise for staff to follow up the MDE workshop with a hands-on dam inspection site visit. Special thanks to the Charles SCD for including us!


Pictured left to right: Gail Myers, Kebede Shihamit, Luis Dieguez, Dr. Alex Shahvari, Brenda Sanford, Gene Whitehead and Julie Miller atop the riser at Trinity Lake.

## URABN AG CONSERVATION (UAC) PROGRAM

BY: STEVE DARCEY

Val Cohen-USDA-NRCS Urban Soil Scientist and Joseph Haamid PGSCD Grant Planner

With the growing attention given to urban farming, the District has recognized for some time the need to offer technical services to the urban ag community. With support from partners such as the Prince George's Food Equity Council, the University of Maryland Extension, the Prince Georges' County Council, the Maryland Department of Agriculture and the USDA-Natural Resources Conservation Service we were awarded a capacity building grant from the National Association of Conservation Districts (NACD).

This grant will fund an urban ag conservation planner in the District for one year. The planner will assist urban farmers with development of soil conservation and water quality plans (farm management plans) on their operations. Many of these urban operators will become cooperators with the District, sign up with USDA-Farm Services Agency and become eligible for cost share programs. Through the efforts of current staff members, five (5) new urban farmers became cooperators with the District in 2017 and 20 farm management plans are in the process of being written.

Larry Holmes, PGSCD
NACD UAC Planner

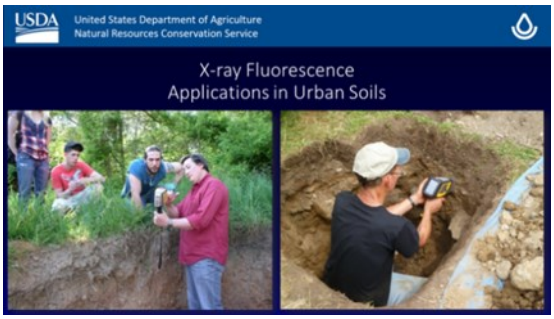
In December, we were fortunate enough to hire Mr. Larry Holmes as our NACD UAC grant planner. Larry retired from the USDA-NRCS after 40 years of service where he served as Director of the NRCS Outreach Division for nine years, served as NRCS National Small Farms Coordinator, chaired the Sustainability Team and helped to frame the initial USDA Small Farm Policy. Larry currently serves as treasurer for the Maryland Chapter of the National Organization of Professional Black Natural Resources Conservation Service Employees and is a member of the Advisory Board for the Professional Agriculture Workers Conference.

Through the NACD UAC grant, we will demonstrate the need for increased technical support for the growing urban farming movement. Our mission is to protect soil and water resources of the County, to produce food and fiber, to increase economic development and to improve water quality by reducing sediment and nutrients from entering local tributaries in these urban farming scenarios.

To learn more about the County's urban ag conservation program and how the District is working with multiple partners to encourage and promote sound stewardship of the land on urban farm operations, please contact Joseph Haamid or Larry Holmes in our office.

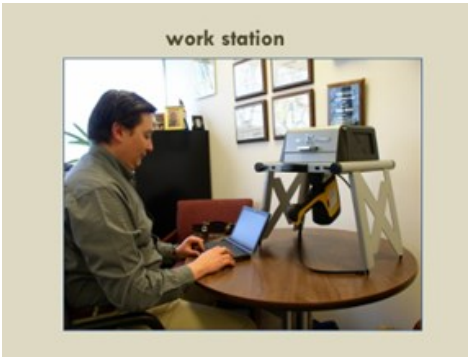
## PORTABLE XRF ANALYZER FOR URBAN AG

BY: VALERIE COHEN, USDA NATURAL RESOURCE CONSERVATION SERVICE



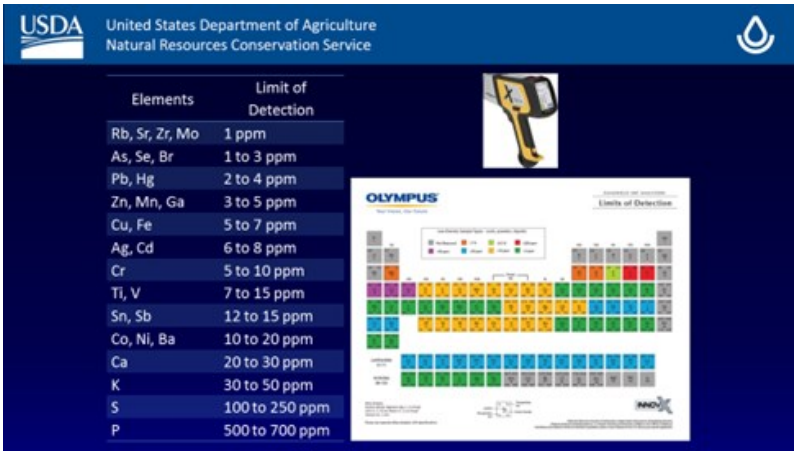

Maryland NRCS recently acquired a portable X-ray fluorescence environmental analyzer (XRF analyzer) to assist urban farmers. The portable XRF analyzer can measure the quantity of trace metals in the soil and provide the information instantly. Soil samples can also be collected and analyzed in the lab using the XRF analyzer at a work station. Knowledge of trace metals in the soil for urban farming is important for the safe production of vegetables.

Healthy and successful gardens and farms require suitable site and soil characteristics. Soils in urban areas often contain high concentrations of lead and other trace metals, which can be hazardous to plants, animals, and humans. Portable XRF analysis can determine the concentration of these metals onsite, the spatial variability and presence of any 'hot spots'. Because the technology emits an x-ray beam, the portable handheld XRF analyzer is only to be used by a certified NRCS employee. This type of equipment is regulated but very safe if used properly.




The x-ray beam is aimed at the target area of the soil. The atoms in the soil are excited and release fluorescent x-rays. The energy level of each fluorescent x-ray is characteristic of the particular element. As a result, one can tell what elements are present based on the energies of the x-rays emitted and in what quantity. The portable XRF unit provides qualitative and semi-quantitative elemental information to guide research and identification of unknown or complex materials. It provides fast results and is sophisticated enough to provide results for applicable science-based projects in the field.

Urban soils can be contaminated with lead, arsenic, nickel, cadmium, zinc, chromium and other trace metals. The contaminants can be derived from many sources; atmospheric deposition as in dust, vehicular traffic pollutants, construction debris, coal slag, industrial waste and even natural soils that have trace metals associated with the natural weathering of the parent material. An NRCS soil scientist can provide a report which compares the trace elements and their quantity in parts per million (ppm) which is then compared to a known standard for that area.




| Elements | Limit of Detection |
|---|---|
| Rb, Sr, Zr, Mo | 1 ppm |
| As, Se, Br | 1 to 3 ppm |
| Pb, Hg | 2 to 4 ppm |
| Zn, Mn, Ga | 3 to 5 ppm |
| Cu, Fe | 5 to 7 ppm |
| Ag, Cd | 6 to 8 ppm |
| Cr | 5 to 10 ppm |
| Ti, V | 7 to 15 ppm |
| Sn, Sb | 12 to 15 ppm |
| Co, Ni, Ba | 10 to 20 ppm |
| Ca | 20 to 30 ppm |
| K | 30 to 50 ppm |
| S | 100 to 250 ppm |
| P | 500 to 700 ppm |

What makes the analysis more difficult in urban settings is the spatial variability. For example, if part of the vacant lot was used as an illegal dumping ground for automobile parts and batteries, the XRF analyzer would pick up higher amounts of chromium, cadmium, zinc and lead in the area of the lot also called a 'hot spot'. This data helps the urban farmer plan the food garden away from the contaminated area. Or they may choose to use raised beds with clean imported compost and soil and a plastic material barrier below to separate contaminated soil from the soil in the raised bed.

## PORTABLE XRF ANALYZER FOR URBAN AG (Continued)

The importance of this data to the urban farmer will allow for better planning and possible mitigation for soil contamination. For example, a mitigation plan could include the following; placing compost and clean soil into raised beds, planting leafy greens in the area where there is low lead concentration, adding organic matter to the soil which provides water holding capacity and a clean growing medium and putting wood chips in walkways around garden beds which will create a barrier decreasing the chances of contamination.

Soil assessment services can help you evaluate conditions in your garden or farm to help maintain safe, healthy, sustainable production. The XRF technology offers a piece of mind that one can grow food in urban areas that is both safe and nutritious.

The XRF analyzer is currently undergoing calibration procedures. It will be utilized in cooperation with the Prince George's Soil Conservation District's Urban Ag Conservation Initiative in 2018 and then made widely available to other interested Soil Conservation Districts and urban farm participants.

### References

"PXRF in NJ &NYC," Richard K. Shaw and Edwin Muniz; USDA/Natural Resources Conservation Services

"Urban Soils in Agriculture;" USDA/NRCS; Urban Technical Note No.4; April 2017

DELTA Family Handheld XRF Analyzer Quick Start Guide; 103076-01 (U8998318)- Rev.E; June 2015

Bruker Elemental Hand-held YRF Analyzer's; X-Ray Radiation Safety Manual; 030.0011.01.0

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## EQUIPMENT RENTAL UPDATE

BY: WADE HAMPTON, AG PLANNER

The 2017 season of the District's rental program was successful and continues to grow. The three no-till drills, post pounder, lime spreader, manure spreader, fertilizer spreader and single shank sub-soiler were all utilized by local farmers. Also, as more farmers take advantage of the local EQIP programs, the demand will increase in 2018.

Cooperators utilized the drills for various no-till applications including forage and biomass plantings and summer cover crop, for EQIP contracts as well as traditional cover crops. The District also used the drills to plant field borders and multi-species cover crop on new fields at the District's Soil Health Demonstration Farm in Brandywine, Maryland. The post pounder was frequently used in 2017 for pasture fencing, including over a mile of EQIP sponsored stream exclusion fencing. With a little training, cooperators have been doing a great job safely using the post pounder, and it continues to be a valuable asset to the cooperators in the County. The lime spreader was used frequently both for spreading lime and compost, while the manure spreader was used to spread horse, cattle and chicken manure on farms in the area. Even the underutilized fertilizer spreader and sub-soiler were used by multiple cooperators in 2017.

As we guide our cooperators towards more Federal and State funding for the installation of conservation practices, the equipment will become more vital to assist in completing those contracts. We look forward to the growth and continued success of our equipment rental program in the future.

## BMP REVOLVING LOAN PROGRAM

BY YATES CLAGETT

In 2010 the Prince George's Soil Conservation District began an "Agricultural BMP Revolving Loan Fund". The program is designed as a short term loan to farmers and landowners for the installation of Best Management Practices (BMPs) on agricultural land. The landowner or farmer can apply for cost-share through various State and Federal water quality cost-share programs to help partially fund the installation of BMPs. Funding doesn't come until several months after the project is complete. Most contractors who install these BMPs expect to be paid immediately upon completion of the job and in some cases during different phases of the job. The District found that some cooperators could not afford to follow through with the installation due to the fact that many of these projects are very expensive and the wait time for reimbursement of cost-share was too long.

The District decided to devote $100,000.00 to a revolving loan program for installation of BMPs for three categories of cooperators; New or Beginning Farmers, Limited Resource Farmers and Socially Disadvantaged Farmers as defined by USDA-NRCS. A cooperator signs up for one of the various cost-share programs and enters into an agreement with the District where the cooperator puts up a small portion of the initial funding based on the cost estimate of the project. The District puts up the larger portion and pays the contractor once the job is complete. The District then is reimbursed by the cost-share program.

John and Chantel Brooks farm, Upper Marlboro, Maryland.

In 2017, the District accepted 5 BMP Loan Program applications from 3 cooperators. The BMPs included, stream side fencing, heavy use area protection, roof runoff management system and a watering facility. Total project costs of over $30,000.00 and District input of approximately $25,000.00. The ability of the District to supplement these projects up front for the landowner is invaluable. Many of these BMPs may not have been installed or would have been delayed had it not been for this program.

## RECYCLING PROGRAM

BY DEBBIE SANDLIN

In 2017, our recycling efforts continued. District, MDA and USDA staff recycled nearly 1,000 cubic feet of paper, plastic and aluminum at the District's Headquarters building in Upper Marlboro, Maryland. Without these efforts, those waste products would end up in the County landfill.

## TOYS FOR TOTS

BY DEBBIE SANDLIN

PGSCD is pleased to participate for the fifth year, in the local Toys for Tots Drive! Toys for Tots is a program run by the United States Marine Corps Reserve which distributes toys to less fortunate children throughout the United States. Toys for Tots helps to bring communities together with a common goal.

## DISTRICT STAFF

Steven E. Darcey, District Manager
John Tarr, District Engineer
Brenda Sanford, Urban Engineer
Julie Miller, Urban Engineer
Supreet Rekhi, Urban Engineer
Kebede Shihamit, Urban Engineer
Eugene Whitehead, Urban Engineer
Robert "Yates" Clagett Jr., Conservation Engineer
Wade Hampton, District Planner
Jeanine Nutter, District Planner/Land Preservation Administrator
Debra Sandlin, Administrative Assistant/Program Coordinator/Editor
Terry Hampton, Administrative Aide/Office Manager
Katie Bliley, Administrative Aide
Rita Jones, Administrative Aide
Samantha Meinhardt, Administrative Aide

## MDA

Diana Lagunes, MDA Planner
Eileen Beard, MDA Planner/Regional Equine Outreach Specialist
Joseph Haamid, MDA Grant Planner

## NACD/UAC GRANT

Larry Holmes, Urban Ag Conservation Planner

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## USDA-RD

Clarence Quarterman, Loan Specialist

## SOUTHERN MARYLAND RC&D

Valenda Clark, Program Support Specialist

*"Out of the long list of nature's gifts to man, none is perhaps so utterly essential to human life as soil."*
*Hugh Hammond Bennett*


## PRINCE GEORGE'S SOIL CONSERVATION DISTRICT

Headquarters
5301 Marlboro Race Track Rd, Suite 100
Upper Marlboro, MD 20772
301-574-5162 ext. 3

Largo Office
9400 Peppercorn Place, Suite 219
Largo, MD 20774
301-883-3265

www.pgscd.org
Fax: 1-855-416-9660