





On the cover

Watershed Specialist Chelsea Walker collects data on fish populations in a stream in northwestern Westmoreland County.

This stream in the Kiskiminetas Watershed is emblematic of the benefits of conservation.

A decade ago, it was polluted with drainage from abandoned coal mines and limited in aquatic life. Now, it supports reproducing brown trout.

Chelsea, who has been with the District for three years, is one of the 'next generation' conservationists – a talented group of young people who have the passion and the willingness to take conservation to even greater successes.

(l-r) Ron Rohall, Christie Sebek, Greg Phillips, Kathy Fritz

Dear Friend of Conservation,

We made the most of every moment in 2016.

We put dozens of conservation projects on the ground to protect our natural resources...launched a county-wide plan to manage water resources...took our first steps into scientific monitoring of conservation measures...created demonstrations with state-of-the art products...reorganized staff duties and purchased technology to help us work more efficiently...and, at year end, set the stage to develop a new organizational strategic plan in 2017.

Our “*Sustaining Conservation*” fundraising campaign provided the fuel for much of what we accomplished during the year and we are grateful to everyone who helped us successfully achieve its \$1.7-million goal. A list of these generous conservation friends is shown on page 29.

And, of course, we are grateful to the people who helped make 2016’s many accomplishments possible. We truly are blessed to have a dedicated group of employees, volunteers, and partners who work together for conservation.

One of those employees, Kathy Fritz, has been with us for more than 33 years. If you have ever submitted a plan for review, you know Kathy. She has been the go-to person for any question on a plan’s status and almost anything related to the state Department of Environmental Protection for as long as most of us can remember.

But that era is about to come to an end. As we were going to press with this annual report, Kathy told us that she had made a hard decision – to take a higher-paying job with another organization closer to home. We will miss her greatly, but thanks to years of cross-training, Christie Sebek, who many of you also know, will be stepping in and providing the same service you’ve come to rely on.

Kathy’s departure also points out how fortunate we have been in attracting and retaining workers; workers who often join the District early in their careers and stay for the duration, or most of it. We thought it might be nice to include in this annual report some pictures of our staff over the years and some reasons, in their own words, why they work here.



Ronald J. Rohall
Chairman



Gregory M. Phillips
District Manager/CEO

2016 Program Accomplishments

CLEAN STREAMS

The District took its first steps into scientific monitoring during 2016.

Ever since its founding in 1949, the Westmoreland Conservation District has relied heavily on industry information and on anecdotal field evidence to judge the effectiveness of a given conservation practice.

And while this approach has worked reasonably well, we realized that we could make a much stronger case for conservation, reach out to a wider audience, and get more practices in place if we could cite measurable data on the practices' effectiveness.

And so, in 2016, we set out to determine exactly what scientific data would be most meaningful to gather regarding stormwater management best management practices and how best to get it.

Our green infrastructure specialist took the lead in this process, conducting research and talking with a number of professionals in the industry before recommending the specific monitoring approaches most appropriate for our area.

In July, the first sensors were installed on GreenForge's green roof and, by fall, two rain gauges and some 17 more sensors were in place throughout our conservation campus, transmitting information every five minutes on soil moisture, volumetric water content, temperature, and electrical conductivity.

An initial analysis of the data gathered through the end of the year revealed that the performance of the various stormwater management practices was consistent with what we would expect.

Our next goal is to set parameters and issue the data on our website in a way that is helpful to contractors, engineers, and others interested in



Green Infrastructure Specialist Matt Zambelli completes the installation of a monitoring system that will provide information on one of Westmoreland County's streams – its depth, electrical conductivity, and temperature.

This information will have many conservation uses, including providing baseline data that will be used to develop the county's first Integrated Water Resources Plan (see page 12).

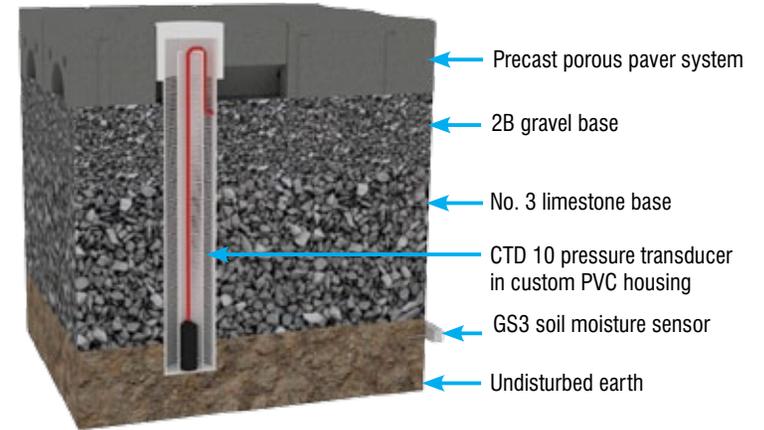
The white box records the stream data and transmits it via a cell phone line to the server, so Matt can download the information to his computer for analysis.

Graphics to the right show the underground location of other new conservation monitors – (top) in the District's new porous parking lot and (bottom) in the GreenForge rain garden.

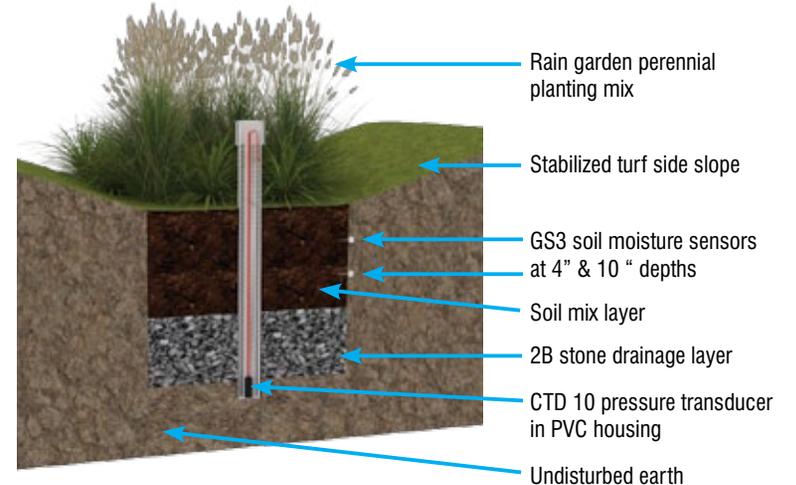
installing these stormwater management practices.

Also during 2017, we plan to install sensors in conservation applications already in place in the community, including the site at Westmoreland County Community College (see pages 3, 25, and 26) and the rain gardens in Mount Pleasant.

Sensor in Porous Parking Lot



Sensor in Rain Garden

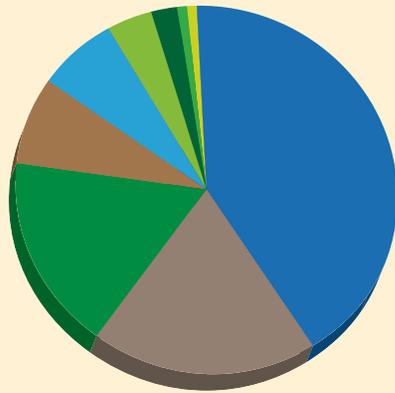


To our knowledge, no other local organization has stormwater demonstrations supplying this type of measurable data.

We believe that having scientific data from stormwater management measures in place in our area will boost our ability to show developers, engineers,

contractors, designers, municipal officials, and others the benefits of these practices under local conditions. Ultimately, this should result in more conservation measures being installed throughout the county than we could otherwise achieve.

2016 Stream Encroachment Permits by Category



Utility Line Stream Crossings	54
Temporary Road Crossings	25
Minor Road Crossings	22
Intake and Outfall Structures	10
Bank Rehabilitation, Bank Protection & Gravel Bar Removal	9
Fish Habitat Enhancement Structures	5
Agricultural Crossings and Ramps	3
Agricultural Activities	1
Small Docks & Boat Launching Ramps	1

Total Permits.....130

Funding for this effort was provided by the Richard King Mellon Foundation as part of our “Sustaining Conservation” campaign.

Cherry Creek, a tributary of Sewickley Creek, was the focus of conservation improvement work during 2016.

We concentrated our efforts on the highly visible portion of this stream that flows through the campus of Westmoreland County Community College.

Because a pedestrian bridge crosses the stream and a large paved parking lot is adjacent to the stream, we were not able to slope the streambanks as we normally would do to prevent erosion. Instead, we installed five rock deflectors and four stabilized walls. We also established a riparian buffer area by planting some 50 trees and shrubs along the stream.

In all, we stabilized some 700 feet of the Cherry Creek streambanks.

In 2014, we collected baseline data on the aquatic life in this portion of Cherry Creek and our plan is to continue to monitor the stream annually to determine how the addition of these conservation measures has improved water quality.

This improvement work was funded by a \$231,000 grant supplied by PennDOT to mitigate the environmental impact of highway improvement projects in our region. (Also see pages 25 and 26.)

Shields Farm, a popular recreation and festival location in Delmont, was the site of conservation work that will benefit both local residents and thousands who live in other areas of Westmoreland County.



New infiltration swales at Shields Farm, Delmont.

The photo on the left shows construction of a swale, which happens largely underground by progressively layering large stone, small stone, and construction sand. A near-ground-level layer of soil tops the other layers of material.

The finished swale (right photo) is slightly lower than the surrounding fields so it can capture runoff (blue arrows) from the festival grounds.

Shields Farm is the site of the annual fall Apple ‘n Arts Festival.





“When I came to the Westmoreland Conservation District for an employment interview in 1988, I was a senior at Penn State University (and Ronald Reagan was President!).

Seeing the family atmosphere at the District and the varied nature of the work – including the chance to help people – convinced me that this would be a good place to work for a year or two. That morphed into a few years, then 10, then 20 and now pushing 30 years!”

Jim Pillsbury
Hydraulic Engineer
Staff since 1988

Because the farm is located uphill from the residential area of Delmont as well as in the watershed that directly feeds Beaver Run Reservoir (a major source of drinking water for the county), work here will reduce local flooding and benefit more than 50,000 homes and businesses with improved water quality.

Four grassy swales were constructed on the property in 2016 to capture and direct rainwater. These measures were necessary because the land, although

largely undeveloped, has had its soil severely compacted from the high volume of foot traffic, so it does not infiltrate well.

A gravel-filled infiltration trench had been installed at Shields Farm in 2015.

The conservation work at this site also provided an opportunity for Delmont borough workers, who were involved in the creation of these 600 feet of stormwater management practices, to learn how to install them.

Our landscape architect/stormwater technician also **designed two other conservation improvements for Delmont Borough** – streambank stabilization measures for 200 feet of an unnamed tributary to Beaver Run, and a permeable paving installation.

Both are scheduled to be installed in 2017.

Our stormwater and watershed staff **worked together on the design, specifications, bidding and construction of four stormwater management pond retrofits in Murrysville.** The work was part of a joint project between the Westmoreland and Allegheny county conservation districts to manage stormwater in the Turtle Creek Watershed.

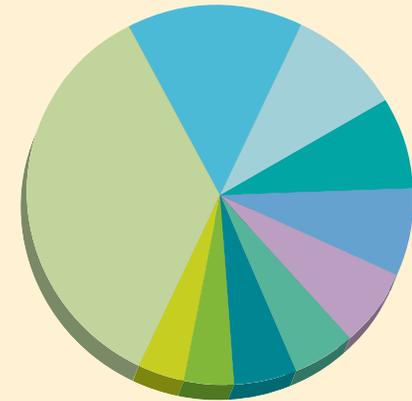
The Municipality of Murrysville participated in the construction of the ponds, which gave those workers firsthand experience with this conservation practice.

Funded by a \$280,600 grant from the state’s Growing Greener program, this multi-year project also will include a rain garden at the Gateway School District campus, a stormwater basin retrofit at the Monroeville Senior Citizen Center, a permeable pavement installation at the Monroeville Library, four municipal stormwater basin retrofits in Penn Township neighborhoods, and two municipal stormwater basin retrofits in Westmoreland County

Industrial Development Corporation properties in Penn Township.

Thanks to a \$128,110 Growing Greener grant received in 2013, we **continued another program that involved retrofitting older stormwater ponds**

2016 Stormwater Plans by Municipality



Hempfield Township.....	28
Unity Township	18
Penn Township.....	15
Municipality of Murrysville.....	14
South Huntingdon Township	13
Salem Township.....	10
Derry Township.....	10
East Huntingdon Township	8
North Huntingdon Township	7
Municipalities with 6 plans or fewer ..	67
Total Stormwater Plans.....	190

owned by municipalities in the county, and this year **it focused on three ponds in Murrysville** (these ponds are in addition to the four ponds mentioned in the previous item).

Murrysville provided a match for the grant money used for this particular work, which involved upgrading the basins' design and technology so that they do a better job of controlling stormwater as it enters and exits these retention areas.

The stormwater basins being upgraded were originally designed and installed before the current Pennsylvania stormwater standards and specifications were in place. After the retrofit work, they meet those standards and also help to reduce erosion and water-quality problems downstream.

Since 2014, this retrofit program has improved a total of 14 municipal stormwater basins, including three in the City of Lower Burrell and four in Penn Township.

Two 15-year-old parking lots at the front and rear of our building were redone this year and a total of eight more parking spaces were added to accommodate visitors and staff without creating any increase in runoff.

The front parking lot, originally created as a stormwater management demonstration in 2001 that featured seven different kinds of plastic and concrete permeable paving systems, was slightly reconfigured and renovated with just one new type of permeable paver – Unilock Eco-Optiloc™ – a new technology that promises better performance in both vehicle weight-bearing and stormwater infiltration.

The rear parking lot, formerly gravel, was upgraded to feature seven different permeable paver technologies, including three of the best performers recycled from the original parking lot in the front of the building. The remaining pavers from the original front parking lot were saved for future use.



The parking lots in the front (top) and back (bottom) of our building were retrofitted to demonstrate a variety of permeable pavers. New permeable sidewalks also were installed to link the front parking lot to Donohoe Center and the larger campus.

In-ground sensors allow us to monitor the performance of four different types of pavers (see graphic on page 2) and a rain gauge (bottom photo, center) allows us to track the amount of liquid precipitation over time.

The new front parking lot is accessed by several new permeable sidewalks that link it to Donohoe Center and the larger campus parking lot. These sidewalks are made of two different porous materials – Flexi®-Pave and Stormcrete™ – so that they also infiltrate stormwater.

Sensors were installed during construction of the parking lots and sidewalks so that we can gather data on the performance of four of the infiltration paving materials (see page 2).

Additional benefits of this project are that it gave the installation contractor the opportunity to work with some conservation materials they were not previously familiar with, and it gave the District staff information to use in helping design professionals learn about these new methods for managing stormwater.

Many of the materials for these renovations were donated and much of this work was funded by the Richard King Mellon Foundation as part of the District’s “Sustaining Conservation” campaign.

Our 2016 Engineers’ Workshop brought some 360 people to learn about the latest innovations in controlling stormwater and erosion.

Grant Ervin, City of Pittsburgh sustainability manager and chief resilience officer, was the keynote speaker for the event, which was offered on two days in March. He spoke on Pittsburgh Mayor Bill Peduto’s sustainability and resiliency plans for the city.

Other timely information presented at the event focused on common erosion-control site mistakes, designing sustainable sites, National Pollutant Discharge Elimination System updates, and MS-4 audits.



STABLE SOILS

Our senior erosion control specialist continued to **conduct monthly inspections of the \$54-million highway upgrade at Center Avenue/Interstate 70 in New Stanton.**

During the year, he monitored this large infrastructure project as it progressed through completion of the major earthwork, pouring of concrete for the roadway, and the creation of three roundabouts and the main traffic bridge on I-70.

The highway project will continue through most



The future site of the Tenaska generating station, South Huntingdon Township.

The magnitude of this project can be seen in the relative size of the heavy equipment being used to move earth to create the pad where the new electric power plant will be built (top half of photo).

At the edge of the pad, a steep slope leads to one of three sediment basins that ring the pad. A temporary slope pipe (center of the slope) carries water from the pad into the basin, where sediment settles out.

Other best management practices that can be seen here include turf reinforcement matting (on steep slope), and a vegetative channel and an emergency spillway (right center of photo).



The future site of the switching station for the Tenaska power plant (pad is where the heavy equipment and trailer sit).

This view shows the site’s sediment pond (center), surrounded by soils that have been amended to improve their capacity to infiltrate stormwater.

Green vegetation is being established incrementally on each successive slope leading down to the pond and the slopes are tracked (note vertical “ridges” in top slope) to prevent erosion.

A vegetated channel runs from the pad into the flat riprap apron and stone energy dissipator (center).

of 2017 and, when complete, will alleviate many of the traffic conflicts caused by the close proximity of the Hunker, New Stanton, and Pennsylvania Turnpike interchange ramps.

South of Interstate 70, between exists 49 and 51, **Tenaska is constructing a natural-gas-fueled electric generating station and a switching station.**

The magnitude of these two projects, which have a combined disturbance area of more than 130 acres, along with the number of associated permitted sites (such as an outfall to the Youghiogheny River), has meant that our erosion control specialist spent a good deal of time during the year on this South Huntingdon Township site.



“I was drawn to the conservation district because this is where I can be most effective at implementing conservation practices. Conserving our resources and being environmentally conscious are not always straightforward or easy, but I enjoy the challenge.”

Jessica Kane
Erosion Control Specialist
Staff since 2014

From February through November, she conducted 17 inspections at the power plant site itself and conducted more than double that number of inspections on the other associated sites, making this the most-inspected site in our county in 2016.

Tenaska, an Omaha, Nebraska based company, has been good to work with and has continually strived to be in compliance with environmental regulations during this construction phase.

The new power plant will be capable of producing 925 megawatts of electricity when it begins operation in 2018.

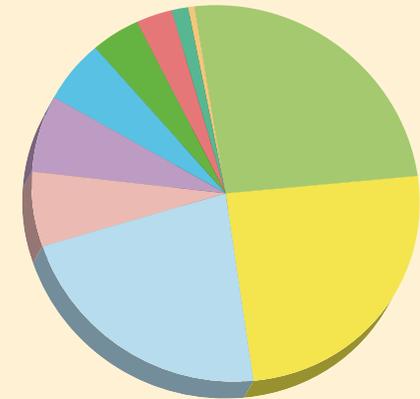
Couple dramatic population growth in the west-central part of Westmoreland County (including North Huntingdon and Irwin) with a single infrastructure system that conveys both sanitary sewage and stormwater, and the result is serious water pollution problems during heavy storms.

When the wastewater volume exceeds the capacity of the sewer system or treatment plant, the excess – which contains not only stormwater but also untreated human and industrial waste, toxic materials, and debris – is discharged into nearby streams, which in this case is Brush Creek.

To resolve this problem, the **Western Westmoreland Municipal Authority is undertaking a six-year upgrade plan that involves building a 7-million-gallon above-ground storage tank and pump station, and installing more than seven miles of 24-inch-diameter interceptor lines** that reach into surrounding areas including Larimer and Bushy Run.

During 2016, site preparation began for the pump station and storage tank. Because of limited space near the current sewage treatment plant, a nearby hillside had to be partially cut away to make room for these new improvements and a vertical geosynthetic wall built to help retain the hillside at the cut.

2016 Erosion and Sedimentation Control Plan Reviews by Watershed



Loyalhanna Creek.....	59
Sewickley Creek.....	58
Turtle Creek/Brush Creek.....	51
Jacobs Creek	15
Youghiogheny River.....	15
Kiskiminetas River.....	13
Conemaugh River.....	10
Pucketa Creek/Allegheny River	7
Indian Creek.....	3
Monongahela River	1

Total Plan Reviews232

Our senior erosion control specialist regularly inspected this work at the WWMA project site during the year, as well as at a nearby residential development site, Brook Haven, where the dirt removed from the municipal authority project was trucked

and placed as benches for housing (see page 10).

The goal of the WWMA project is to eliminate all sanitary sewer overflows and combined sewer overflows by 2020.

Work to widen about three miles of U.S. Route 119 in Mount Pleasant Township presented some unique inspection challenges during the year as most of this section of highway corridor is flanked by wetlands.

Because wetlands are environmentally sensitive areas and because the water in them can drain to nearby streams, measures had to be in place to ensure that any sediment created by the roadwork was kept out of the wetlands.

Our erosion control specialist monitored this 91-acre disturbance site for most of the year.

The Route 119 highway work is a continuation of a project that began several years ago with improvements to the cloverleaf where Routes 819 and 119 meet in East Huntingdon Township. It will continue into 2017.

Another major highway project we inspected for erosion control was on PA Route 981 near the Arnold Palmer Regional Airport in Unity Township.

A roundabout is being installed here, at the entrance to the airport on Route 981.

We inspected the 32-acre site from the start of work in July through December. The project will continue in 2017.

In Upper Burrell, Alcoa's Technical Center was the site of a \$60-million expansion that included the construction of new buildings and ponds and rain gardens to manage stormwater runoff.

The project involved not only site inspections by our technical staff but also a good deal of office time



Old Route 711 in Cook Township gets an application of Driving Surface Aggregate from a road paver. The material, which looks uneven in the photo, will air dry and then be rolled smooth.

doing permitting paperwork.

The volume of paperwork increased significantly because Alcoa split the company in two (Alcoa and Arconic) after the National Pollution Discharge Elimination System permit had been obtained and while construction work was going on. Also, the company was very diligent about sending in new erosion and sediment control plan sheets, which we reviewed, for every modification made, including minor ones.

This project will conclude in 2017.

Almost \$271,400 was invested in 11 dirt, gravel, and low-volume road improvement projects throughout the county in 2016.

A total of four dirt and gravel roads and seven low-volume roads (roads traveled by fewer than 500 vehicles per day) were improved.

Improvements included the installation of road-specific practices, including underdrain, grade breaks, cross pipes, and raising the road profile.

See the chart on page 9 for a list of specific roads that were improved (note: in most cases, a portion of the road (not the entire road) was improved).

In addition to work done under the Dirt, Gravel, and Low Volume Road Maintenance Program, the District's watershed specialist used Growing Greener funds to **coordinate the improvement of approximately one mile of Coal Hollow Road**, a municipal road in Bell Township that was severely eroding and contaminating nearby Beaver Run with sediment.

Coal Hollow Road was improved with cross pipes and underdrain, grade breaks and conveyor belt diversions. The profile of the road also was raised and two stream crossings were replaced with precast concrete headwalls.

Next year, the improved section of this road will be surfaced with Driving Surface Aggregate, a specification developed by the Penn State Center for Dirt and Gravel Roads Studies.

Funding for this project was provided by the state's Growing Greener program. (See chart on page 9.)



Coal Hollow Road in Bell Township after improvements, which included raising the road's surface. Next year, this road will be further improved with a Driving Surface Aggregate.

2016 Improvements Under the Dirt, Gravel, and Low Volume Road Maintenance Program

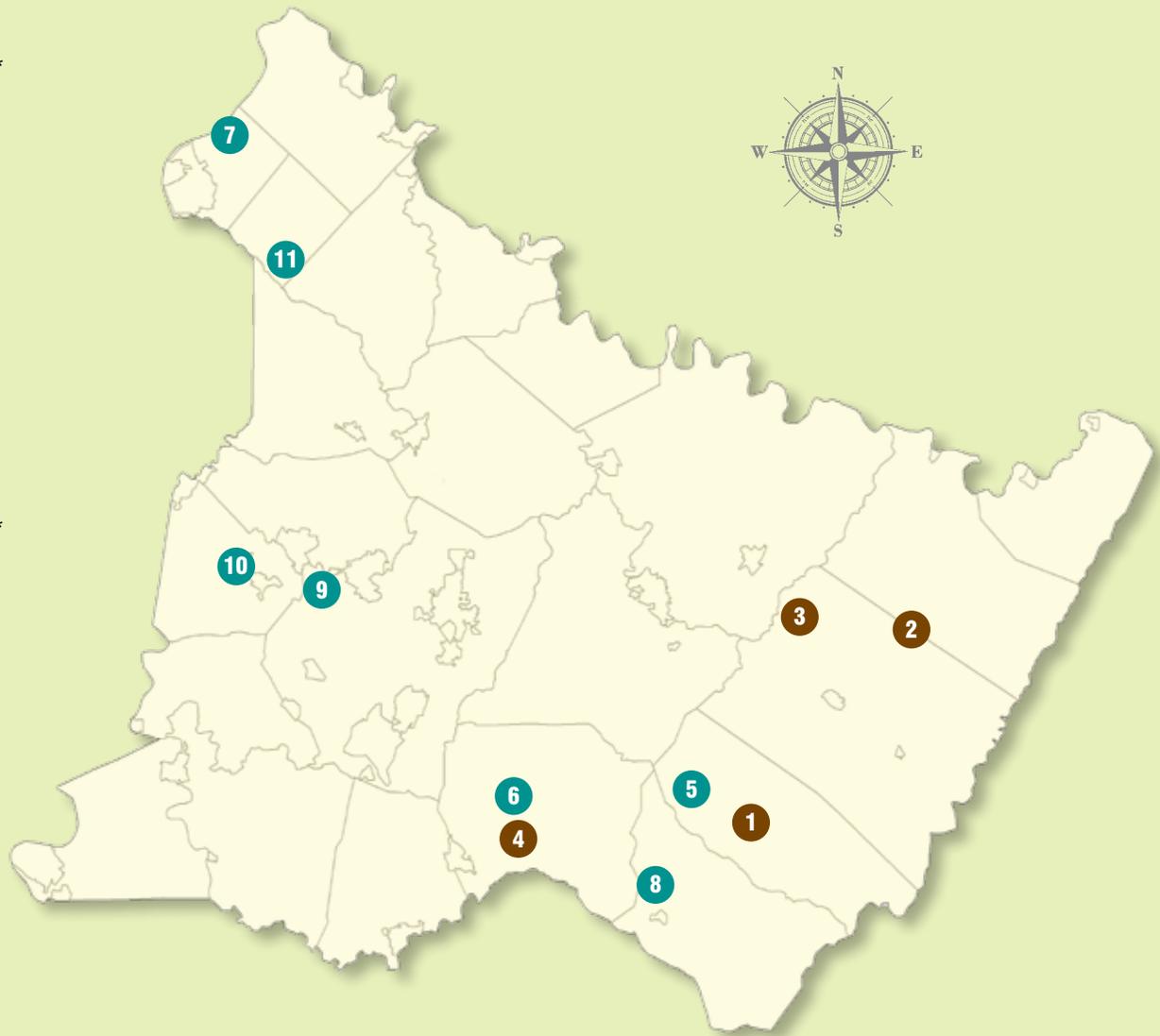
Dirt and Gravel Roads

Road Name	Municipality	Watershed
1 Old Route 711	Cook Township	Loyalhanna Creek*
2 Wineland Road	Fairfield Township	Loyalhanna Creek
3 Red Arrow Road	Ligonier Township	Loyalhanna Creek
4 Misty Meadow Road	Mount Pleasant Township	Jacobs Creek

Note: Coal Hollow Road, Bell Township, Beaver Run Watershed, also was improved during 2016. Funds for this project were provided by the state's Growing Greener program.

Low Volume Roads

Road Name	Municipality	Watershed
5 Hoods Mill Road	Cook Township	Loyalhanna Creek*
6 Slope Hill Road	Mount Pleasant Township	Jacobs Creek
7 Edgecliff Road Extension	City of Lower Burrell	Allegheny River
8 Harr Road	Donegal Township	Loyalhanna Creek
9 Harding Street	Manor Borough	Turtle Creek
10 Can Factory Road	North Irwin Borough	Turtle Creek
11 Whitten Hollow Road	Upper Burrell Township	Pucketa Creek



* Funding for this improvement was allocated in 2015.



Scrapers move and place the fill brought in to the Brook Haven residential development in Penn Township from the Western Westmoreland Municipal Authority's project site (see page 7).

Inset – Finished homes built on the benches created by the fill. A detention pond can be seen in the lower portion of the picture.



The Brook Haven single-family-home development in Penn Township required us to **do some nontraditional inspections during the year because, instead of traditional earthmoving, it was the destination for fill removed from the Western Westmoreland Municipal Authority's project site** (see page 7).

Truckloads of material from the WWMA project were brought into this development, which is scheduled to add some 46 more homes in three phases.

Our senior erosion control specialist regularly inspected not only the placement of the fill, which was used to create benches for the houses, but also the condition of Route 993, which the trucks used to

make the trips back and forth between sites.

In Penn Township, development began in September for a new patio-home community called Sterling Oaks.

We inspected the site through December as the road systems were constructed.

Ultimately, 27 lots will be developed, each with two patio-home units.

In 2016, we **reached a record high number of new and renewed Conservation Partnership Agreements.**

Fifteen municipalities signed these agreements,



"I like the fact that I'm always learning and then can share that knowledge with our clients. I also like taking on problems. I love the challenge it brings and, at the end of the day, helping people solve them is what makes me feel good.

So many people dislike their occupation. I can honestly say that I have never felt that way."

Chris Droste, CESCO
Senior Erosion Control Specialist
Staff since 1999

which outline how the District and the municipality will work together on natural resource issues related to forestry, agriculture, erosion and sediment control, and stormwater management.

Twelve of the CPAs were renewals of existing agreements. Three of the CPAs were new ones, signed with Bell Township, the City of Monessen, and Salem Township.

Area contractors were invited to attend a **new outreach event – a "Demo Day" – where they had a chance to learn about various erosion control and stormwater management best management practices by seeing them in action.**

The day-long event got under way at the District office where several vendors were on hand to show and discuss their products. A PowerPoint presentation was used to explain how these products were installed on different sites.

Next, the attendees travelled to a nearby site owned by Adam Eidemiller, Inc. for some real-world experience.

Eidemiller's crew cut a 10-foot-long, 1-foot-deep channel at the site and the vendors and our staff used it to show how to install five turf-reinforcing products that we determined were 'tried and true' practices that worked well in the field.

Attendees could move between different 'stations' to see the installation and performance of the Faircloth Skimmer® surface drain, a conveyor belt diversion, hydroseeding, weighted sedimentation filter tubes, and inlet filter bags.

Forty-six people attended the October 21 event and, despite a pouring rain, gave it rave reviews, including one group of attendees who said they learned how to better assess hydroseeding installations and some contractors who said they left feeling better able to prepare project bids.

In the months since the "Demo Day," our staff have been seeing better control installations on

actual job sites throughout the county.

We held a workshop for contractors in January with the theme of "Guidelines for Stormwater and Erosion Control Projects."

Forty-seven people attended the event, which featured presentations by District technical staff on a number of timely topics, including the contractors' role during critical stages of stormwater installations, best management practices for dirt and gravel roads, and which erosion-control best management practices work and which ones don't.



2016 Erosion and Sedimentation Control Inspections by Municipality

Unity Township	50
Ligonier Township	38
South Huntingdon Township	29
Penn Township.....	28
Salem Township.....	25
Hempfield Township.....	24
North Huntingdon Township	23
Rostraver Township.....	17
East Huntingdon Township	16
Municipality of Murrysville.....	14
Donegal Township.....	12
Fairfield Township.....	9
New Stanton Borough	8
Townships with 6 inspections or fewer ...	48
Total Inspections.....	341



At our first-ever "Demo Day," our staff illustrated the proper installation and use of a variety of best management practices, including conveyer belt diversions for deflecting water from access roads and gravel driveways (left) and a stormwater basin dewatering device called a Faircloth Skimmer® (right).

SUSTAINABLE COMMUNITIES

One of our largest efforts of the year continued to be **working toward a Westmoreland-County-wide plan for managing local water resources.**

Known as an Integrated Water Resources Plan and undertaken in partnership with the Westmoreland County Planning Department, this multi-year effort will create a comprehensive blueprint for managing the streams and rivers in our county in ways that improve drinking-water quality, reduce flooding, enhance recreation, and bring about other quality-of-life benefits.

This plan will be the first-ever in Westmoreland County.

Toward the plan's development, we hosted public meetings during the year and some 130 people, including municipal authority representatives and area homeowners, came and shared their concerns about water. Subjects included sewage overflows, municipal ordinances, aging infrastructure, and neighborhood flooding.

Compiling the comments from these meetings revealed the locations of specific water-related problems in the county, some of which our hydraulic engineer has already been able to address.

Information from the 2016 public meetings, as well as from additional public input meetings scheduled during 2017, will be used to develop the plan.

We assisted in taking another step toward creating the Integrated Water Resources Plan by sending out requests for proposals and **selecting a consultant to do the technical modeling of streams in the priority watersheds** (see map on page 24).

The technical models will be created using field information gathered by our staff (including actual measurements we took of various streams' width,

depth, and flow) as well as data provided by the U.S. Geological Survey and NOAA, and by the remote sensors we installed in streams (see page 2).

The technical models will help us understand how each stream behaves over time. This data, combined with public input, will be used to design site-relevant recommendations that will help prevent problems such as compromised water quality and uncontrolled runoff.

The recommendations will help guide future development and redevelopment, once adopted by the county and each local municipality.

As part of the Integrated Water Resources Plan, our green infrastructure specialist **installed several pressure transducers in Jacks Run and in Sewickley Creek.** These devices gather information on the streams' behavior, including how their water levels vary in height with changing amounts of rainfall, snow, evapotranspiration, and so on during the year.

The real-time data the sensors gather will be the basis for creating a hydrologic model that the Integrated Water Resources Plan will then use to predict future behavior of the streams. Having this baseline will allow planners, for instance, to predict how changes in land use (e.g. changing land use from open space to development) or climate will change the streams.

In 2017, a few more sensors will be installed in major streams in other watersheds in the county.

In 2016, **the final conservation improvement in the McGee Run Watershed project was installed – an innovative, aerated composting system on a horse farm.**

This system uses an electric blower to maintain aerobic conditions in the animal waste pile at all times. It eliminates the need to “turn the pile,” and accelerates the composting process from years to just

one or two months.

Properly operated, this system will produce enough heat to pasteurize the raw material, dramatically reduce offensive odors, destroy fly larvae and weed seeds, and produce a safe, high-quality soil enhancement.

Good manure management ensures that excess nutrients don't find their way into nearby streams.

The streams in the McGee Run Watershed were previously identified as “impaired” by the Pennsylvania Department of Environmental Protection, meaning they were polluted with sediment and nutrients, compromising water quality.

This 27-mile watershed in Derry Township and Derry Borough also has the most Marcellus Shale



“When young, I spent a lot of time playing outside, digging in the garden or wading in the stream catching crayfish and salamanders. When I'd come in to wash the dirt off my hands, my mom would always say, “Don't let the faucet run, you're wasting water.” That might have been the beginning of my awareness of the importance of water and over the years it grew into my desire to improve water quality.”

Chelsea Walker
Watershed Specialist
Staff since 2014



The electric blower (on right in inset photo) is the key to this unique aerobic composting system installed on a horse farm in Derry Township.

Because of it, manure stored in this roofed building will decompose into a safe, high-quality soil enhancement in months instead of years, and without the need to turn the pile.

wells of any watershed in Westmoreland County, and so is the most impacted by drilling.

In 2013, the Westmoreland Conservation District applied for and received a \$300,000 grant from the Pennsylvania fund that collects fees on new, unconventional gas wells, and used it to **put more than 15 different conservation improvements in place throughout the McGee Run watershed**, including resurfacing part of the longest public unpaved road in Westmoreland County...installing a new, 30-car infiltration parking lot at a community swimming pool...creating a rotational grazing system on a horse farm...planting 50 trees along the banks of a stream running through another farm...and

developing a stewardship plan for a privately owned forested tract.

In preparation for construction of a new hiking/biking trail, **work was done to stabilize the banks of Turtle Creek in six different locations**, five in Murrysville and one near a railroad bridge that connects Penn Township and Monroeville.

Riprap was added and trees were planted on these steep and severely eroded banks, including one that had a precarious 15-foot drop.

In all, the project improved more than 1,000 linear feet of slopes and prevented some 1,200 tons of sediment from polluting the creek, with is a trout-

stocked fishery.

This work was funded by a grant of \$92,963 from Pennsylvania's Growing Greener program.

Even passive wetland treatment systems need active maintenance from time-to-time.

And during 2016 **some "quick response" repairs were needed at the passive treatment system that removes iron oxide from Sewickley Creek in Lowerber.**

During an inspection of the Lowerber site in the spring, our staff saw water flowing over the earthen berms that separate the treatment system's individual holding ponds.

The overflowing water was saturating and beginning

to erode these earthen berms. If not addressed in a timely fashion, this situation had the potential to cause the treatment system to fail.

To make the needed repairs quickly, the District applied for and received emergency funding from the Western Pennsylvania Coalition for Abandoned Mine Reclamation's Quick Response Program.

The cause of the problem – a clog of iron sludge, plants, and debris – was removed from the underground pipes and above-ground troughs that the water normally flows through as it travels from pond-to-pond. And the eroded berms were repaired.

To help prevent future trouble, some of the underground pipes were replaced with new, above-ground concrete spillways.

The total project cost was \$21,630, which was funded by an \$18,000 Quick Response Grant and \$3,630 from the Sewickley Creek Watershed Association.

A non-typical, highly acidic abandoned mine discharge had been adding about five gallons of pollution a minute to an unnamed tributary to Andrews Run, a stream in Westmoreland County's central Sewickley Creek Watershed.

During the year, the District **coordinated the last phase of a two-year construction project to create a passive system that will treat this discharge and improve the quality of water in the stream.**

Two settling ponds, the second of which was amended with 660 tons of limestone, were constructed and the three-acre project site was hydroseeded to minimize erosion.

In 2015, we coordinated the installation of an anoxic limestone drain at this location. This drain uses trenches of buried limestone to raise the pH and alkalinity of the discharge before channeling it into the two new settling ponds, which finish the



Two settling ponds (two adjacent rectangles in photo center) were built to treat an abandoned coal mine discharge that was polluting an unnamed tributary to Andrews Run in the Sewickley Creek Watershed near Herminie.

More than 600 tons of limestone in one of the ponds (top) helps reduce the acidity of the discharge.

White spray in the photo's center is a slurry of grass seed and mulch used to stabilize soil disturbed during the building of the system.

treatment. Iron and manganese are among the pollutants that are removed from the water before it is returned to the stream.

The entire passive treatment system was funded with a \$183,000 Growing Greener grant obtained by the Sewickley Creek Watershed Association.

We continued to **provide support to area watershed associations during the year.**

For the **Kiski Watershed Association**, our watershed specialist helped to write a grant request to the Watershed Mini Grant Program offered by

the Western Pennsylvania Conservancy and the Dominion Foundation.

The \$2,650 funding would be used to improve a trailhead and small trail parking lot in West Leechburg.

Also for the Kiski Watershed Association, she assisted with the annual Kiski River Sweep, during which volunteers removed several hundred tires from the river between the Avonmore Bridge and the Avonmore kayak launch.

For the **Sewickley Creek Watershed Association**, we helped to procure a grant of \$2,500 through the

Western Pennsylvania Coalition for Abandoned Mine Reclamation from ARIPPA, the Anthracite Region Independent Power Producers Association. The money was used for “quick response” repairs at the Lower passive treatment system (see pages 13 and 14).

For the **Turtle Creek Watershed Association**, we helped to procure a \$600 grant to write and design three informational trail signs – one about the Turtle Creek Watershed, one about the importance of wetlands, and one about stream erosion – and, late in the year, we applied for additional funding to produce and install the three-foot by four-foot signs.

For the **Jacobs Creek Watershed Association**, we provided technical assistance, including detailed recommendations and cost estimates, for a project to stabilize a two-mile stretch of Shupe Run. The watershed association used this information to apply for grant funding for the project.

The Stahl family of Smithton and Larry Larese of Export were honored by the District as outstanding conservation partners at a reception in mid-September.

Three generations of the **Stahl family** were recognized as the Conservation Farmer of the Year for their outstanding agricultural stewardship of 160 acres near the Youghiogheny River.

The Stahls have limited erosion on their steep property by adding contour strips, crop rotation, no-till practices, animal walkways, a stabilized access road, and a rotational grazing system.

And they help to keep area waterways clean through a combination of diversion ditches, underground drains, rock outlets, and a roofed manure storage building.

Larry Larese, who served for 39 years as Westmoreland County’s top economic development planner, was



The Stahl family of Smithton was named 2016 Conservation Farmer of the Year. The Stahl family has practiced conservation on their 160-acre farm for three generations, two of which were in attendance at the ceremony. Pictured, l-r, are: Nathan Fink and Melissa Stahl; Bonny and Duane Stahl; Liz and Jason Stahl. Presenting the award were District Board Members Bill Doney and Conrad Donovan.



Larry Larese (center) was honored with the 2016 J. Roy Houston Conservation Partnership Award for his long-time support of conservation.

Larry recently retired as Westmoreland County’s top economic development planner and worked closely with the District throughout his 39-year career. Pictured with Larry and his wife, Betsey, are, l-r, District Board Members Ted Kopas and Chuck Duritsa; and Barry Kukovich of Peoples Gas, sponsor of the award.

awarded the J. Roy Houston Conservation Partnership Award for his long-time support of conservation.

As Larry worked over the years to establish 16 industrial parks throughout the county, he wasn't focused only on creating jobs, he also was focused on conservation, making sure that each park included innovative stormwater management features, attractive and functional landscaping, and permanent

areas of open space.

He was instrumental in the District being located on Donohoe Road where it is today; in the creation of the Westmoreland Land Trust, a nonprofit organization that conserves open space in the county; and in the creation of one of the county's first trails, the Five Star Trail.

The J. Roy Houston Conservation Partnership Award is underwritten by Peoples Natural Gas, which also is the reception's major sponsor.

PRODUCTIVE FARMS

A roofed, solid stack manure facility was completed at the Boggs Dairy Farm, a 30-milking-cow operation along the upper stretch of Beaver Run in Salem Township.

Dry stacking manure is the most common and most practical method of manure storage for small livestock operations. The new facility benefits both the farmer and the environment because it provides the freedom to spread manure when weather and field conditions are best.

The new facility also benefits many people in Westmoreland County because its roof prevents runoff from the manure pile from entering Beaver Run, which feeds the reservoir that is the source of drinking water for some 50,000 homes and businesses.

Conservation work on the Boggs Dairy Farm is funded through a Pennsylvania Growing Greener grant and will continue in 2017.

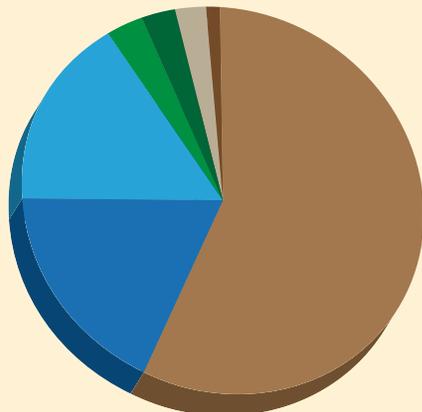
Ed Rebitch, who owns a small beef farm at the edge of the Borough of Delmont, began preparations during the year for a **number of conservation improvements that will be added to his operation during 2017.**

With funding from the Pennsylvania Growing Greener program, Ed plans to install a stream crossing, an animal walkway, fencing, a riparian buffer, a spring development with water trough, and gutters and downspouts on his barn.

The Rebitch farm also is located near Beaver Run, so these planned conservation measures also will benefit everyone who gets drinking water from the Beaver Run Reservoir.

In the Turtle Creek Watershed, **groundwork was laid during 2016 for conservation improvements**

2016 Technical Assistance by Program



Seventy-five students from seven schools participated in the 2016 Envirothon, a competition that tests high school students' knowledge of conservation and the natural world.

Team 1 from Southmoreland High School won the event and went on to represent Westmoreland County at the statewide competition.

Funding for the Westmoreland County Envirothon was provided by the Pennsylvania Envirothon, Inc.; Apex Energy, LLC; and Smithfield Foods.

A number of District **partners and like-minded groups used our center to host their meetings during the year**, including the Pennsylvania Association of Conservation Districts, the Pennsylvania Department of Environmental Protection, the Westmoreland County Boroughs Association, and the Westmoreland Woodlands Improvement Association.

These events, along with programs offered by the District at our center, brought more than 500 municipal solicitors, farmers, state agency officials, woodlot owners, engineers, watershed representatives, and members of the general public to our campus.





Boggs Farm
Beaver Run Watershed

Tributary to Beaver Run

Completed in 2016

Dry stack manure storage

Scheduled for 2017 Completion

Drain lines	Animal walkway
Fencing	Spring development
Access road	Stream crossing
Dry pond	Water troughs

Because the Beaver Run Reservoir is a source of drinking water for more than 50,000 area homes and businesses, water quality in this watershed is especially critical.

A tributary to the reservoir's main stream, Beaver Run, flows through the Boggs farm where work is being done to limit the dairy operation's agricultural impacts – including eroding soil and animal nutrients – on the waterway.

Other farms in the watershed also are scheduled for conservation improvements.

Conservation Districts allowed us to **host five manure management workshops throughout Westmoreland County in 2016.**

Derry, Fairfield, Sewickley, and Bell townships were the sites of these half-day workshops where farmers came to learn the ins and outs of writing a manure management plan. One workshop also was held at the District's headquarters.

In all, 39 area farmers attended the events and 30 completed their plans. Our technician also provided one-on-one assistance to a number of additional farmers who did not attend the workshop but still completed or updated their plans during the year.

A manure management plan is a relatively simple document, about 12 pages in length, that helps the farmer keep track of where manure is spread and the yields of those fields. It is updated by the farmer each year and required by state law for any operation that has production animals and where manure ends up on the land.

This is the third year that the District has hosted the free manure management workshops across the county.

on two adjacent farms – the Idle Creek Boarding Stables and the Jeff Graham beef farm.

Both operations want to install measures that will allow their animals to cross Turtle Creek to get to additional pastures.

Our nutrient management specialist/agricultural technician is working with both owners to determine the best conservation way to do this. Work is expected to begin at both farms in 2017.

The District **received 14 complaints of erosion and sedimentation problems on area farms during the year.** This number has been about the same each year since 2012 when the District first began handling agricultural complaints. Prior to 2012,

such complaints were handled by the state Department of Environmental Protection.

Most of the conservation problems that we see on Westmoreland County farms are related to erosion – such as not having gutters on farm buildings (which then allows water to run directly on to the barnyard, creating erosion).

Our nutrient management specialist/agricultural technician was able to work with all the farmers mentioned in these complaints. All but two complaints were successfully resolved by year-end and we anticipate that those remaining will be resolved in early 2017.

A grant from the Pennsylvania Association of

We helped the Pennsylvania Association of Conservation Districts **promote the Conservation Reserve Enhancement Program twice during the year.**

In the spring, we provided the venue for a free Open House that featured experts who were available for one-on-one conversations and who gave informal presentations on CREP eligibility, payments and responsibilities, and on conservation practice maintenance issues and solutions.

In the fall, we offered two tours of Westmoreland County farms where CREP practices had been installed – Friendship Farms in Mount Pleasant Township and three family farms in New Alexandria.

Twelve people joined us for the spring Open



Duane Hutter (right), a long-time farmer in Mount Pleasant Township, reviews the manure management plan he developed for his farm with Dan Griffith, the District’s nutrient management specialist/agricultural conservation technician. Hutter is a strong proponent of such planning, which helps farmers keep track of fields where manure is spread and the yields of those fields.

House and 40 came to the farm tours.

CREP provides financial and technical assistance to landowners for creating wildlife habitat while addressing soil erosion and water quality issues on their properties. Landowners are paid an annual rental payment and other incentive payments to take marginal land out of production and install approved conservation practices.

CREP is administered by the U.S. Department of Agriculture’s Farm Service Agency in partnership with other government agencies and private organizations.

“What’s Bugging You? And Why Soil Health Depends A Lot on Which Bugs You Have.”

That was the catchy title of the 2016 Southwest Pennsylvania No Till and Soil Health Conference, held on January 27 at the Fred Rogers Center in Latrobe.

This annual conference featured keynote talks by Leroy Bupp, who has been no-till farming for more than 30 years and Jim Harbach, whose central Pennsylvania family farm has been no-tilled for 40 years with the addition of cover crops during the last five.

Rounding out the day-long event was a presentation by Nicole Wood, Pennsylvania Department of Agriculture industry technician, a five-person panel discussion on no-till challenges and victories, and a vendor show.

Some 135 people attended the event, which also could provide core, category pesticide, nutrient management, conservation planning, and CCA credits to attendees.



“I always have had a love for the environment and the forest in particular.

When I started at the District, I thought it would be a “stepping stone” job until I got back to the timber industry. But over time I found that I loved the work here and, after being allowed to develop the District’s Forestry Program, it became impossible to leave.

The thing I enjoy most is helping people make good forest management decisions for their woodlots. Most people want to do what’s right, they just need a bit of education on the best ways to steward their woods.”

Tony Quadro
 Assistant District Manager/
 Technical Programs Director/
 Forester
 Staff since 1985

FORESTRY

During the year, **eight woodlot owners in the county asked our forester to prepare basic forest management plans for their woodlots.**

He assessed the woodlots in Cook, Unity, Fairfield, Sewickley, Derry, Penn, Mount Pleasant, and South Huntingdon townships and made site-specific stewardship recommendations for each.

One of these sites was a 100-acre woodlot he had visited and prepared a plan for some 15 years ago. The owner remembered that it was time for the plan to be updated and contacted the District.

A basic forest management plan includes an inventory of the site; an evaluation of a number of factors, including the tree species, age, and condition; number per acre; stand density; regeneration potential; presence of invasive species; and basic recommendations for managing the woodlot. It is less extensive than a forest stewardship plan.

Our forester prepared a stand analysis for a woodlot owner in New Stanton.

This document will help the landowner apply to the U.S. Department of Agriculture's Natural Resources Conservation Service for cost-share funds to treat the invasive species on his 12-acre lot.

Invasive species disrupt natural communities and ecological processes. They can limit use and enjoyment of a woodlot (for instance when thorny multiflora rose fills in the understory), can impact regeneration success and proper stand development, and also can impact wildlife species diversity (one example, garlic mustard, is toxic to certain native butterflies and secretes a chemical that kills some fungi).

Our forester was **in contact with three area**



A forest stewardship plan was prepared during the year for Ann Rudd Saxman Nature Park, a 65-acre wooded oasis in a heavily commercialized area near Greensburg.

2017 will see the implementation of the plan, which will include removing invasive species and planting native trees and shrubs.

municipalities during the year regarding timber-harvesting ordinances.

Generally, these outreach efforts are made to simply ensure that the relationship between our organizations is good and that the lines of communication are open. In one case, however, the outreach was prompted by our forester observing three active logging jobs that did not have erosion and sedimentation control plans.

We were able to work with the township and the loggers to remedy these problems.

Without erosion and sedimentation controls

in place, logging sites can be a significant source of erosion. Skid roads are cut across the forest's earthen floor to get the harvesting equipment to the trees, and then to provide paths to drag the logs out. Roads that are improperly located or made without the proper best management practices are the biggest cause of erosion during logging.

Our forester also worked with a township to reduce the performance bond requirement in its ordinance from \$10,000 to \$500 to make it less burdensome on logging companies.

A total of seven municipalities in the county have

regulations guiding the harvesting of timber within their borders.

We were successful in raising funds under our “*Sustaining Conservation*” campaign to **develop a forest stewardship plan for Ann Rudd Saxman Nature Park and implement its recommendations.**

Nature Park is a 65-acre, largely wooded, passive recreation area adjacent to our conservation campus and a rare open-space oasis in a heavily commercialized area near Greensburg (the park is just one mile from Westmoreland Mall and one of Westmoreland County’s busiest intersections – Route 30 and Donohoe Road).

With limited funding for upkeep in recent years, the park is in need of conservation management. Many of its ash and elm trees are diseased and are in various states of decline. Additionally, there is a mounting problem with invasive species.

In 2016, we were able to procure funds from the Dominion Foundation, the Foundation For Pennsylvania Watersheds, and the Pennsylvania Department of Conservation and Natural Resources so that our forester could prepare the forest stewardship plan.

In 2017, the remaining funds will be used to implement the plan, including work to remove such invasive species as privet, Norway maple, honeysuckle, tree of heaven, and multiflora rose from the 10 acres of the park closest to the trailheads and to plant native trees and shrubs, including sugar maple, oaks, and black haw.

The District **continued to support the operation of the Westmoreland Woodlands Improvement Association.**

Many organizational matters were addressed during the year, from revisions to bylaws to beginning the incorporation process. Additionally, our forester assumed the responsibility of treasurer for

the organization.

The WWIA held several field trips and six programs during 2016, with an overall emphasis on the urban forest. Topics included backyard forestry, woodland edibles, and managing for wildlife.

WWIA is a membership organization of private citizens who strive to promote wise use of local woodlots without degrading their quality and sustainability.



“Girl Scouting fostered my love of the natural world and taught me to leave places better than they were found. These ideals led me to become a landscape architect because I could be a steward of the land. I enjoy helping engineers use the land and the natural systems to manage stormwater.”

Kathy Hamilton, RLA
Landscape Architect/
Stormwater Technician
Staff since 2005

ORGANIZATIONAL DEVELOPMENT

We continued to work during the year to **offset ongoing losses in annual revenue by increasing fees for service** (see item below) and, at year end, had successfully created a very close proportional income mix of state funds (36%), county funds (33%), and a combination of fees for service and grants (28%). Workshop attendance fees and sponsorships provided the remaining 3% of our 2016 revenues.

Economic realities once again affected our 2016 annual allocation from Westmoreland County, as the commissioners worked to find ways to fund programs without raising taxes.

The District’s board fully recognizes the challenging fiscal realities that the county faces and has worked especially diligently these past few years to continue to cut its operational costs wherever possible. For 2016, we took the added step of reducing our already austere county budget request by 5.5%.

For the past six years, **we have looked to fees to help make up the revenue not provided by the county.**

The fees we charge to review development plans for erosion and stormwater controls were historically very low (\$500 for an erosion control review of a 5-6 acre site in 2010; \$300 for a stormwater management review of the same-sized site in 2011). But by the end of 2016, after annual increases, these fees have reached a point where they are close to being the highest of any conservation district in the state and at the upper limits of what our local market can reasonably bear.

In light of the continuing budget challenges, we have been working to come up with alternative sources of revenue while maintaining our high level

of service provision.

During the year, we engaged the highly respected Bayer Center for Nonprofit Management to help us once again develop a strategic plan for our organization.

The Bayer Center facilitated the development of our most recent plan, which was completed in 2010.

Some of the key areas we expect to examine in-depth when this process begins in 2017 include internal issues such as organizational staff succession and sources of revenue, and major external influences on our organization, including the increasingly polarized political climate.

During the year, our board chairman met with staff to gather their initial input, and we began seeking funding to help us with the cost of engaging the Bayer Center for this important work.

Following the trend toward digital communication, we launched two new electronic outreach vehicles in 2016.

A short-format newsletter, “Landmarks High-points,” focuses on current conservation projects and a calendar, “Conserve These Days,” lists upcoming conservation events.

The publications alternate every month and are distributed to as many as 2,600 email addresses.

We made three staff responsibility and job title changes during the year to better reflect the work being done by these individuals.

Matt Zambelli, who earned his professional landscape architect license during 2016, was named our green infrastructure specialist, a position that may be the only one of its kind at a conservation district in Pennsylvania.

Previously working as a stormwater technician/landscape designer, Matt will now help address the

increasing demand for design services. The District is fortunate to have a steady stream of grants, mostly from the state, to put conservation projects on the ground throughout our county, and the first step in making these projects a reality is to design them.

Additionally, Matt’s high-level computer skills

have made him a natural as the lead on the new scientific monitoring program we began in 2016 (see page 2).

Rob Cronauer was promoted from watershed specialist to watershed program manager and **Chelsea Walker** was promoted from watershed



Our erosion and sedimentation control staff (left and center) meet with a representative involved in the Pennsylvania Pipeline project to discuss the sequence of construction and the project’s process.

The number of meetings between our program staff and those doing work that impacts the natural resources has been increasing in recent years. We now regularly have meetings before projects have been designed, during their construction, and after projects are complete.

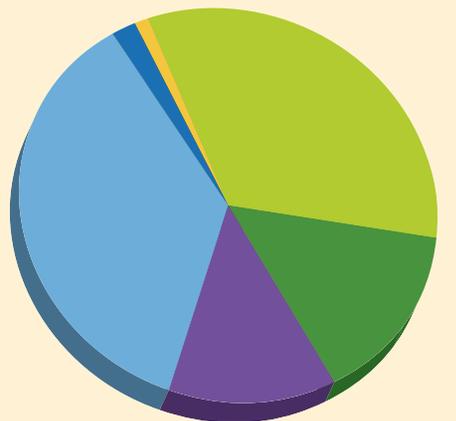
These meetings benefit all parties. They give our staff an opportunity to make suggestions that might lessen a project’s impact on the land, save money on earthmoving costs, and ensure that work is done in compliance with permits and regulations.

technician to watershed specialist to reflect the growing number of responsibilities in this conservation area, which includes the Dirt, Gravel, and Low Volume Road Maintenance Program, the Landowner Reclamation Program, PennDOT mitigation work, Growing Greener road projects, and technical assistance grants.

Two of our District's board members were elected as officers of the executive council of the Pennsylvania Association of Conservation Districts.

Chuck Duritsa was elected second vice president

2016 Westmoreland Conservation District Funding by Source



	Westmoreland County	33%
	Grants.....	15%
	Review Fees.....	13%
	Commonwealth of Pennsylvania.....	36%
	Workshops	2%
	Sponsorships.....	1%

and Joe Dietrick was elected secretary.

The PACD executive council manages the administrative and fiscal affairs of the organization and is the channel through which conservation district members connect with the state organization.

Ron Rohall, District board chairman, continued his service on the Pennsylvania State Conservation Commission during 2016.

The Pennsylvania State Conservation Commission is a 14-member commission that helps ensure the wise use of Pennsylvania's natural resources.

The commission provides support and oversight to the state's 66 county conservation districts for the implementation of conservation programs in an efficient and responsible manner.

Ron was appointed to the SCC by former Pennsylvania Governor Corbett in 2014.

During the year, Joseph Dietrick, Commissioner Ted Kopas, and Paul Sarver were reappointed to the District's Board of Directors.

Joe and Paul were reappointed for a four-year term; Ted for a one-year term.

Also reappointed to two-year terms of service as associate directors were Christopher Bova, Emil Bove, Reid Crosby, Alexander Graziani, Larry Larese, John Lohr, William Mihalco, Robert Pore, John Turack, and Keith Walters.

Our visual communications specialist **prepared a series of framed photographs featuring some of the many conservation projects** the District has been involved with. The prints now hang throughout the District office.

Because the photographs are printed on the District's new plotter, purchased with funds from

the "Sustaining Conservation" campaign, it is easy to update the images as new projects are undertaken.



"This position with the District was my first experience working for a nonprofit, and I loved the fact that this could be my way of doing what I do best at a place that was making a difference in our environment.

I was already involved with volunteer work at a local wildlife rehabilitation center, which was more hands-on, but in working for the conservation district I could still do what I needed to do to earn a living but this time with a sense of pride in knowing the end result served a better purpose."

Karen Barnhart
Fiscal Administrator
Staff since 1998



Financial Statement

Concise Statement of Financial Position

Combined Funds - December 31, 2016

ASSETS

Cash.....	\$ 1,311,017
Accounts Receivable.....	\$ 267,984
Capital Assets.....	\$ 417,507
Prepaid Expenses.....	\$ 12,377
Total	\$ 2,008,885

LIABILITIES AND NET ASSETS

Current Liabilities.....	\$ 155,783
Net Assets	\$ 1,853,102
Total	\$ 2,008,885

Concise Statement of Activities

Combined Funds - Year Ending December 31, 2016

SUPPORT

Westmoreland County.....	\$ 728,385
State Grants.....	\$ 899,139
Administrative Services.....	\$ 161,802
Consulting, Planning & Fees.....	\$ 423,434
Room Rental/Interest.....	\$ 5,781
Unclassified Operating Revenues.....	\$ 109,643
Grants & Contributions.....	\$ 453,906
Special Projects/Intergovernmental.....	\$ 130,968
Total	\$ 2,913,058

EXPENDITURES

General Conservation.....	\$ 1,642,228
Special Projects	\$ 798,494
Capital Outlays.....	\$ 168,258
Other	\$ 38,470
Total	\$ 2,647,450
Net Change in Fund Balance.....	\$ 265,608
Fund Balance - Beginning.....	\$ 1,190,257
Fund Balance - End	\$ 1,455,865

Thank you to our state legislators and county commissioners, who allocate funding every year for the District.

State funding supports many of the core conservation programs we offer, including programs delegated to us by the state in agriculture, post-construction stormwater management, erosion and sedimentation control, and dirt, gravel, and low-volume roads.

County funding has been instrumental in helping us attract significant additional dollars for “above and beyond” conservation improvements throughout Westmoreland County (see pages 24 - 27).



Westmoreland County State Government Officials

Rep. Frank Dermody
 Rep. George Dunbar
 Rep. Eli Evankovich
 Rep. Justin Walsh
 Rep. Eric Nelson
 Rep. Joseph A. Petrarca, Jr.
 Rep. Mike Reese
 Rep. Ryan Warner
 Sen. James R. Brewster
 Sen. Patrick Stefano
 Sen. Kim Ward
 Sen. Donald White



Westmoreland County Commissioners



Ted Kopas, Gina Cerilli, Chuck Anderson

“Above and Beyond” Conservation Projects

To be able to do conservation projects that are needed in our county, but that are “above and beyond” our funded, mandated duties, we seek out nontraditional sources of funding. This largely involves applying for competitive grants from the state and federal governments, and from foundations, businesses, and organizations.

How successful we are in winning these grants determines what “above and beyond” conservation projects we can do.

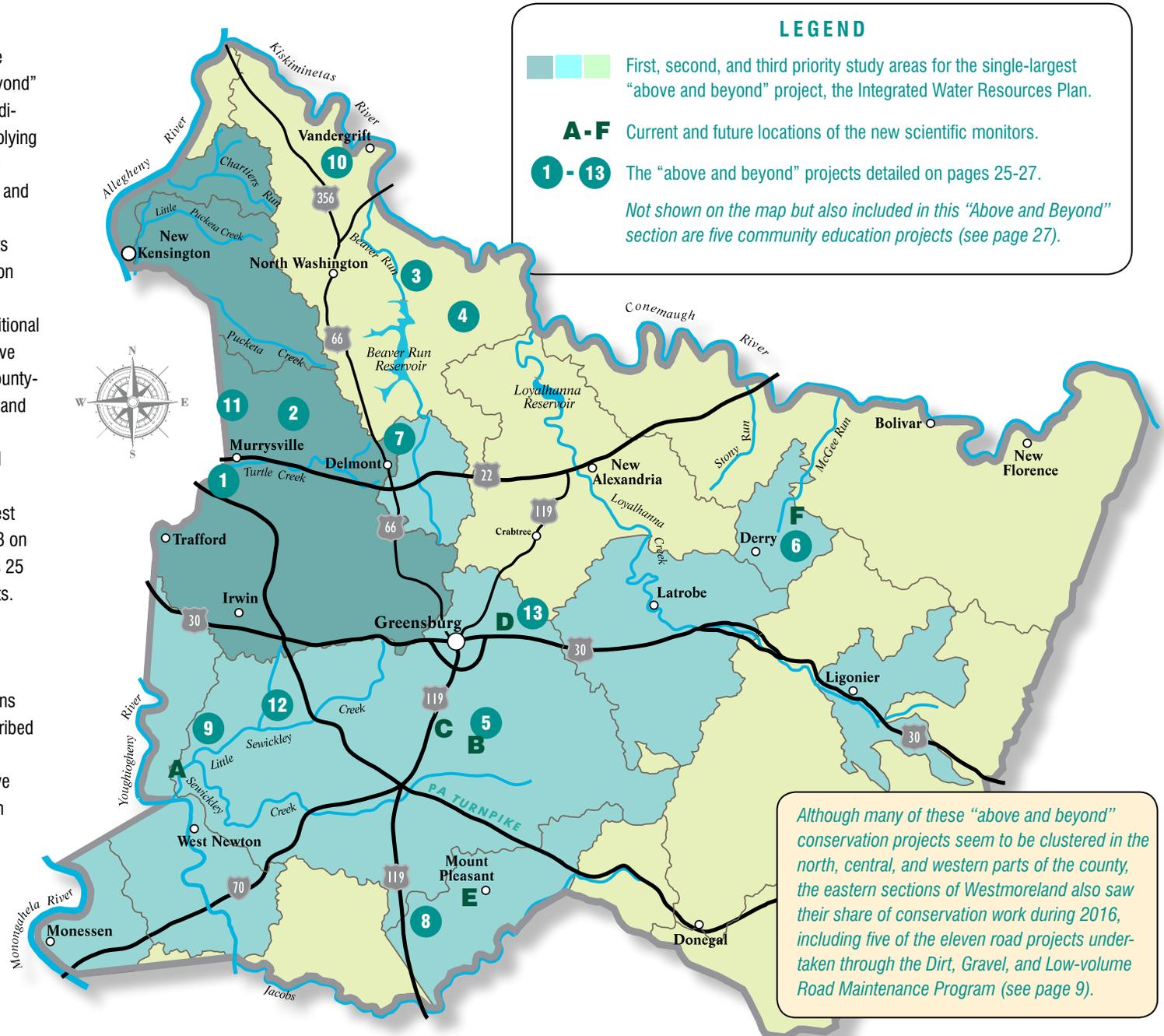
In 2016, we had some \$1,701,592 in nontraditional funding in-hand, and were using it to put 13 “above and beyond” conservation projects, one major county-wide study, a new scientific monitoring program, and five education offerings in place in our county.

The conservation projects, which include road improvements, streambank stabilization, manure management, stormwater basin retrofits, and forest stewardship, are shown as numbers 1 through 13 on the map on this page and are described on pages 25 through 27. Some of these are multi-year projects.

The county-wide study, the Integrated Water Resources Plan, is indicated by the large shaded areas on the map and described on page 25.

The new scientific monitoring program locations are shown as capital letters on the map and described on page 25.

“Above and beyond” education projects that we were able to undertake because of our success in obtaining competitive grants are numbered 14 through 18, but are not shown on the map. Information on them can be found on page 27.



FUNDED BY COMPETITIVE GRANT AWARDS

Integrated Water Resources Plan

This large and far-reaching study project will ultimately lead to improvements in drinking-water quality, sewage and septic systems, and better management of water's role in agriculture, development, and recreation throughout our county.

It also will help to protect the county's exceptional-value and high-quality streams, and encourage remediation of streams that are impaired.

Funded by a \$200,000 grant from the Richard King Mellon Foundation.

A-F Scientific Monitoring

In 2016, we installed the first scientific monitoring sensors on our conservation campus. The 20 sensors and two rain gauges here transmit information every five minutes regarding soil moisture, volumetric water content, temperature, and electrical conductivity to help us assess the performance of various stormwater management practices.

In 2017, we plan to install additional sensors in other conservation practice locations throughout the county.

Funded by a \$100,000 grant from the Richard King Mellon Foundation.

1 Turtle Creek Streambank Stabilization

Some 1,000 linear feet of slopes were stabilized with riprap and trees in six locations along Turtle Creek in Murrysville where the Turtle Creek Trail extension of the Westmoreland Heritage hiking/biking Trail will be built.

Funded with a \$92,963 grant from Growing Greener.



Rock deflectors (center), stabilized walls (under inset photo), and trees and shrubs were used to stabilize a portion of Cherry Creek as it flows through Westmoreland County Community College (see page 26).

Inset – Project manager Rob Cronauer and John Sterdis, WCCC coordinator, buildings and grounds.

2 Municipal Stormwater Retrofits

We continued a program of retrofitting older stormwater ponds owned by municipalities in the county, this year focusing on seven ponds in Murrysville.

The basins' design and technology was upgraded so that they do a better job of controlling stormwater as it enters and exits these retention areas.

Since 2014, this retrofit program has improved a total of 14 municipal stormwater basins, including three in the City of Lower Burrell and four in Penn Township.

Funded by a Growing Greener grant of \$128,000 received in 2013. Murrysville also provided a match for work done in that community.

3 Beaver Run Road Improvement

Approximately one mile of Coal Hollow Road, a municipal road in Bell Township that was severely

eroding and contaminating nearby Beaver Run with sediment, was improved with cross pipes and under-drain, grade breaks and conveyor belt diversions. The profile of the road also was raised and two stream crossings were replaced with precast concrete headwalls.

Last year, another mile of this road was similarly improved.

Funded as part of a \$70,000 grant from Growing Greener.

4 Best Management Practices on Farms in Beaver Run Watershed

Work continued in 2016 on a project to prevent runoff from a farm's manure pile from entering Beaver Run, a stream that feeds the reservoir that is the source of drinking water for some 50,000 homes and businesses.

A roof was added to the farm's solid stack manure storage facility, which had been built in 2015.

Funding from this grant also will be used to

install similar improvements and best management practices on other farms in the Beaver Run Watershed. Funded by a \$129,945 grant from Growing Greener.

5 Westmoreland County Community College Cherry Creek

Some 700 feet of streambank along Cherry Creek on the campus of Westmoreland County Community College was stabilized with five rock deflectors and four stabilized walls. Fifty trees and shrubs were planted along the stream to establish a riparian buffer.

Cherry Creek is a tributary of Sewickley Creek. Funded by a \$231,000 grant from PennDOT to mitigate the environmental impact of highway improvement projects in our region.

6 McGee Run Watershed Conservation Improvements

The final conservation improvement in the McGee Run Watershed project was installed – an innovative, aerated composting system on a horse farm.

Properly operated, this system will produce enough heat to pasteurize the raw material, dramatically reduce offensive odors, destroy fly larvae and weed seeds, and produce a safe, high-quality soil enhancement.

Good manure management ensures that excess nutrients don't find their way into nearby streams.

A variety of other conservation measures were installed on farms, in forests, and in developed areas throughout this watershed in Derry Borough and Derry Township over the past several years.

Water quality in the 27-square-mile McGee Run Watershed and communities downstream will benefit.

Funded by a \$300,000 grant from the Commonwealth Financing Authority and a \$20,000 grant from the Foundation for Pennsylvania Watersheds.

7 Stormwater Management in Delmont

Four grassy infiltration swales were constructed on Shields Farm, a popular recreation and festival location uphill from the residential area of Delmont.

Because the farm is located in the watershed that directly feeds Beaver Run Reservoir (a major source of drinking water for the county), work here will reduce local flooding and benefit more than 50,000 homes and businesses with improved water quality.

A gravel-filled infiltration trench had been installed on Shields Farm in 2015.

Also in 2016, 200 feet of an unnamed tributary to Beaver Run were stabilized with a combination of precast concrete wall units, rock slope stabilization, turf reinforcement mat and vegetation.

Funded by a \$110,971 grant from Growing Greener.

8 Sherrick Run

Administrative work was completed, including selection of a contractor through a competitive bidding process, for this work that will enhance a section of Sherrick Run in Mount Pleasant Township with stabilization and plantings for habitat and wildlife.

Work also was done during the year to attract additional funding to augment a \$150,000 grant from PennDOT. The PennDOT funds were awarded to mitigate the environmental impact of highway improvement projects in our region.

9 Lowber Quick Response

Water overflowing the earthen berms that separate the cells of the Lowber passive treatment system was a critical condition in need of immediate repair.

Fast action removed clogs from underground pipes and above-ground troughs and repaired the eroded berms.

To prevent similar problems, some underground pipes were replaced with above-ground concrete spillways.

Funded by an \$18,000 grant from the Western Pennsylvania Coalition for Abandoned Mine Reclamation's Quick Response Program and \$3,630 from the Sewickley Creek Watershed Association.

10 Pine Run Abandoned Mine Drainage Discharge

After studying several ways to treat an alkaline discharge on Pine Run in Allegheny Township, we prepared a request to the Pennsylvania Department of Environmental Protection for funding to design one of these options that would entail piping the discharge through a railroad right of way to a treatment system.

If funded, this project would treat an average of 335,000 gallons per day.

Partners include the Kiski Valley Water Pollution Control Authority, the Kiski Watershed Association, Cone-maugh Valley Conservancy, and Allegheny Township.

PARTNER PROJECTS

These are projects initiated by like-minded agencies, sometimes in concert with the District, and that District staff members helped to make happen.

11 Turtle Creek Stormwater Management

Four municipal stormwater basin retrofits in Murrysville were completed as part of a joint project between the Westmoreland and Allegheny county conservation districts to manage stormwater in the Turtle Creek Watershed.

The project will continue in 2017. Scheduled to be constructed are a rain garden at the Gateway School District campus, a stormwater basin retrofit at the Monroeville Senior Citizen Center, a permeable pavement installation at the Monroeville Library, four municipal stormwater basin retrofits in Penn Township neighborhoods, and two municipal stormwater basin retrofits in Westmoreland County

Industrial Development Corporation properties in Penn Township.

Funded by a \$208,000 grant from Growing Greener.

12. Andrews Run Abandoned Mine Drainage Discharge

Two settling ponds were constructed during 2016 to help clean this highly acidic tributary to Sewickley Creek. The second pond was amended with 660 tons of limestone and the three-acre project site was hydroseeded to minimize erosion.

This last phase of a two-year construction project to create a passive treatment system was completed in 2016. In 2015, we coordinated the installation of an anoxic limestone drain at this location.

Initiated by the Sewickley Creek Watershed Association and funded by a \$183,000 grant from Growing Greener.

13. Ann Rudd Saxman Nature Park

In 2016, we were able to procure funding to prepare a forest stewardship plan for a portion of Ann Rudd Saxman Nature Park, a 65-acre, largely wooded, passive recreation area just one mile from Westmoreland Mall.

Funded by a \$15,000 grant from the Dominion Foundation, a \$5,000 grant from the Foundation for Pennsylvania Watersheds, and a \$29,500 grant from the Pennsylvania Department of Conservation and Natural Resources.

EDUCATION PROJECTS

This work helps to raise awareness of good conservation practices with a variety of audiences throughout the county.

14. Manure Management Workshops

Five-half day workshops, held throughout the county, drew 39 farmers seeking to gain assistance on how to complete manure management plans for



Seventy-five students from seven area high schools participated in the 2016 Westmoreland County Envirothon, a competition that challenges students' knowledge of the natural world.

Pictured are first-place winners from Southmoreland High School, who went on to compete in the state Envirothon competition. (l-r) Haley Rollinson, Alex Busato, Brendan Hixon, Jenna Hixon (advisor), Mady Bodenheimer, Mackenzie Blair.

their farms.

Funded through a \$1,500 grant from the Pennsylvania Association of Conservation Districts.

15. Envirothon

This annual event tests high school students on their knowledge of the natural world. Seventy-five students from seven area high schools participated.

Funded in part through donations by the Pennsylvania Envirothon, Inc.; Apex Energy, LLC; and Smithfield Foods.

16. CREP Outreach

We hosted two walkabouts on local farms that have installed Conservation Reserve Enhancement Program projects.

Participants got the chance to see these installations and ask questions of the CREP participants.

Funded with a \$1,483 grant from the Pennsylvania Association of Conservation Districts.

17. Homeowners' Tool Kit for Stormwater Management

This online reference will help homeowners solve their stormwater problems by giving them instructions on how to plant a rain garden, install a swale, and more. The Tool Kit will be available on the District's website by summer 2017.

Funded by a \$3,000 Environmental Education grant from the Pennsylvania Department of Environmental Protection.

18. Turtle Creek Watershed Association Interpretive Sign Project

Three interpretive trail signs were designed by our visual communication specialist. The signs provide information about the Turtle Creek Watershed, the importance of wetlands, and stream erosion.

Funded by a \$600 watershed mini-grant from the Western Pennsylvania Conservancy and Dominion Foundation.

Sustaining Conservation

At the end of 2016, we had achieved our goal and were closing out the \$1.7-million “Sustaining Conservation” fundraising campaign we initiated in late 2014.

The campaign was launched so that we could acquire the tools, scientific support, partnerships, and functional capacity additions we needed to secure conservation’s position as a local imperative for the foreseeable future.

During the year, we successfully raised the remaining amount needed to reach our goal from foundations, businesses, philanthropists, and individuals who support our mission.

In addition, because some needs changed toward the end of the two-year campaign (such as the more pressing need for a strategic plan than for an economic impact plan), a few funding requests were still outstanding at the end of 2016. Also outstanding were several pledges of in-kind construction work that were waiting to be undertaken in the spring and summer of 2017.

The District’s 2017 annual report will provide the remaining contributions and outcomes of this very successful campaign.

We are most grateful to all of our supporters, a complete list of which can be found on page 29.

As our requests for funding were successful during the year, **we continued to address the additional needs identified in our campaign.**

Following is a list of what we were able to accomplish during 2016 with “Sustaining Conservation” funds. The accomplishments are listed under six key areas of focus.



Thanks to funds raised during our “Sustaining Conservation” campaign, we now have state-of-the-art tools such as a new 70-inch Aquos Board® to enhance our work with the many clients we serve.

Here, the new display system links to Westmoreland County’s GIS mapping site, allowing everyone in the meeting to truly be ‘on the same page’ in discussing the particulars of property sites throughout the county.

Enhancing Client Services

- Adding an Aquos Board® to our new technical staff conference area
- Transforming the large loft into offices for our education program coordinator and visual communications specialist
- Replacing the carpeting throughout our center

Creating Practical Conservation Demonstrations

- Retrofitting the stormwater demonstration

parking lots in the front and back of our building

- Retrofitting the stormwater demonstration sidewalks in the front of our building
- Converting the landscape lighting outside our building to LED

Managing Our County’s Water Resources (Integrated Water Resources Plan)

- Hosting five public meetings to gather citizen input on water issues
- Selecting a consultant to do the technical

modeling of the nine priority watersheds

- Field-measuring streams and installing monitoring equipment to provide stream data

Gathering Science-based Data

- Installing two rain gauges and 20 sensors throughout our campus to monitor stormwater management installations, including the green roof and rain garden at GreenForge, and the new parking areas around our building

Building New Partnerships

- Making a number of new contacts with members of the public, with professionals, and with municipal officials as a result of the work on the Integrated Water Resources Plan
- Obtaining first-time Conservation Partnership Agreements with three municipalities (see page 10)

Improving Our Conservation Campus

- Developing a forest stewardship plan for Ann Rudd Saxman Nature Park

The final campus improvements funded by the campaign, including the creation of a unifying landscape along Donohoe Road and refreshed landscaping around our barn, maintenance of GreenForge's green roof, new outdoor pole and pathway lighting, new best management demonstrations at GreenForge, and invasive species control in Ann Rudd Saxman Nature Park, will be put in place in 2017.

"Sustaining Conservation" Campaign Donors

through December 31, 2016

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\$100,000 and above

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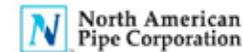
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