

# It's Ours

FY 2017 ANNUAL REPORT

[#protectpreserve](#)

**TN**

Department of  
**Environment &  
Conservation**

**Citizens of Tennessee, Each year we produce an Annual Report to provide insight on how our department fulfills its mission to make Tennessee an even better place to live, work and play.**

I hope through this report you will gain increased awareness on our department’s priorities, performance and promotion of thoughtful environmental stewardship and effective natural resource management.

This report covers a most eventful year, complete with extraordinary challenges and milestone achievements. Our department has been part of a statewide partnership response to both exceptional drought and historic wildfires. From innovative water supply delivery on the Cumberland Plateau to rescue and recovery from the Gatlinburg wildfire, TDEC was there making a difference communities across Tennessee. In 2017, we also marked the first time in more than a decade that the entire state met critical federal air quality standards for ozone and particle pollution. Indeed, our statewide air quality is the best it’s been since the beginning of the industrial era.

Our state parks have set record levels for visitors, increased education and interpretation opportunities and a continued investment in the park facilities to upgrade them to better serve the public. A number of our parks were in the path of the total eclipse of the sun on August 21, 2017 welcoming thousands of visitors from across the globe to witness this historic event.

The successes highlighted in these pages are a result of the talented TDEC professionals and staff who are dedicated to improving the quality of life for all of us here in Tennessee. Cleaner air, purer water, better protected land and a nationally-acclaimed state park system are the results of their work. Their intense caring and commitment reflects an, “It’s Ours” mentality shared by our employees. We live here. We work here. We play here. We have an acute awareness of our responsibility to protect, preserve and promote the rich natural heritage that makes Tennessee such a special place. I am grateful for the support of Governor Haslam for our mission, the opportunity to work alongside these outstanding individuals, to be part of this terrific team, and to serve the people of Tennessee in this incredibly rewarding way.



**Bob Martineau**

*Commissioner*

**Bob Martineau**

*Commissioner, Tennessee Department of Environment & Conservation*

**TDEC is comprised of the following offices, bureaus, programs, boards, commissions, and councils:**

**Department Wide Offices:**

- Commissioner’s Office
- Fiscal Services
- Human Resources
- Information Systems
- Office of Energy Programs
- Office of External Affairs
- Office of General Counsel
- Office of Policy and Planning
- Office of Sustainable Practices
- Office of Talent Management

**Bureau of Environment:**

- Air Pollution Control
- Geology
- Radiological Health
- Remediation
- Solid Waste Management
- Underground Storage Tanks
- Water Resources

**Bureau of Conservation:**

- Archaeology
- Natural Areas
- Recreation Education Services
- Tennessee State Parks

**Boards, Commissions, and Councils:**

- Air Pollution Control Board
- Board of Groundwater Management
- Commissioner’s Council on Greenways & Trails
- Compliance Advisory Panel
- Great Smoky Mountains Park Commission
- Heritage Conservation Trust Fund Board
- State Review Board
- Tennessee Historical Commission
- Tennessee Archaeological Advisory Council
- Tennessee Board of Water Quality, Oil & Gas
- Underground Storage Tanks and Solid Waste Disposal Control Board
- Water & Wastewater Operators Certification Board
- West Tennessee River Basin Authority

# TDEC in the News



## Fort Loudoun history lessons beam worldwide

With help from modern technology, park staff gives students peek at past

STEVES AHLEN | STEV.AHLEN@KNOXNEWS.COM

VONORE - "Shooting off the market always gets 'em," says Eric Haghey as he adjusts the British soldier's red coat and puts away his iPad.

Haghey is park manager at Fort Loudoun State Historic Park near Vonore. On any given day, he is likely strutting about in his white military knee breeches tucked into his iPad. He tells a fourth grade class in the Dominican Republic why soldiers in the 1700s wore linen shirts that stretched below their knees or explains to students from Arizona how their forebears were rowed around the fort to help in its defense.

Haghey and the three rangers stationed at the park are taking part in a program run in cooperation with Microsoft's Skype, which allows instructors to beam their lessons live to any corner of the world.

Fort Loudoun has a surprising history to tell. During the French and Indian War (1754-1763), the British Colony of South Carolina sent workers and troops here to construct and garrison what became Fort Loudoun. Among other accomplishments, the fort helped to ally the colony with the Overhill Cherokee Nation in the fight against the French and open trade with the

Garrison weekend

The park will hold Garrison Days this weekend, featuring re-enactments and people dressed in period clothes. The free event will be 10 a.m. - 5 p.m. Saturday and 10 a.m. - 2 p.m. Sunday.

"Fort Loudoun's story really has global implications. ... This type of platform could provide a great way for people to see how our site connects into history."

HOBBART AKIN  
CULTURAL RESOURCES AND EXHIBITS SPECIALIST  
WITH TENNESSEE STATE PARKS

See FORT, Page 13A

## Red Bank stream health progressing [photos]

October 23rd, 2016 | by David Cobb | In Local Regional News | Read Time: 1 min.



## Tennessee State Parks Offer Rewards Through Healthy Parks Healthy Person Program

Tuesday, August 1, 2017

Healthy Parks Healthy Person program

Being active outdoors is not only good for your health - it can earn you Tennessee State Parks merchandise, golf rounds, free camping or even cabin stays thanks to a new program.

Tennessee State Parks and the Tennessee Department of Health have partnered to develop a web application called Healthy Parks Healthy Person, which allows Tennesseans to log their activities at Tennessee State Parks in exchange for points that can be redeemed for rewards. The program also includes a Park Prescription feature where healthcare providers



## TDEC announces \$2 million in grants to help reduce landfill waste

Van Buren County to receive \$141,400

The Tennessee Department of Environment and Conservation (TDEC) today announced \$2,071,417 in recycling equipment, recycling rebates and used oil grants for FY 2017 projects to help reduce landfill waste in Tennessee and move materials to the best highest use.

"This grant program encourages and supports local communities to meet their solid waste and recycling goals," said TDEC Commissioner Bob Martineau. "Local governments can divert more waste from landfills through infrastructure upgrades and providing convenient opportunities for residents to get engaged in the process."

Recycling Equipment Grants and the Recycling Rebates are authorized by the Solid Waste Management Act of 1991 and are supported by the Tennessee Solid Waste Management Fund, which is administered by TDEC. The fund receives revenues from a state surcharge on each ton of solid waste disposed in landfills and from a fee on new tires sold in the state.

Used Oil Grants are authorized under the Used Oil Collection Act of 1993 and are funded by the Used Oil Collection Fund, which receives its revenues from a two cent (\$0.02) fee collected against every quart of oil sold.

"By collecting used oil in an environmentally responsible way, it

reduces TDEC's Division of Water Resources."

Recycling Equipment Grant Recycling equipment grants may be used to purchase key equipment for new recycling programs, improve and expand the operation of existing systems or prepare recyclable materials for transport and marketing. Grants may be awarded to counties, cities, non-profit recycling organizations and solid waste authorities to help reach or exceed the goals set forth in the Solid Waste Management Act of 1991. Each recipient is required to match the state grant on a sliding scale basis. A local match of 10-50 percent is required based on an economic index that includes factors such as per capita income and property values in the jurisdiction to be served.

The recycling equipment grant will support the implementation of 2015-2025 Solid Waste and Materials Management Plan Objective, and will support local governments' efforts toward achieving their waste reduction and recycling goals. Successful proposals demonstrate how the requested equipment will improve operating efficiencies or:

- Increase recycling access and participation (Objective 2), by enhancing drop-off and curbside programs
- Promote Material Processing and End Use in Tennessee (Objective 3)
- Support new waste reduction and

form of government to establish and operate used oil collection centers at publicly owned facilities or other suitable public or private locations; and provide technical assistance to persons who organize such programs. (668-211-1005(2))

The department may award grants to local governments to purchase equipment that burns oil as fuel. In awarding such grants, priority shall be given to local governments to establish used oil collection centers. (668-211-1005(3))

The used oil grant supports the 2025 Plan Objectives 2 and 7 by increasing the number of used oil collection sites for do-it-yourselfers and ensuring safe and environmentally sound disposal.

From the Recycling Equipment Grant, Van Buren County will receive \$50,000 with a match of \$7,775. From these funds the county will be purchasing two vertical balers, two pallet scales and two 35 yd roll-off containers.

From the Used Oil Grant the county will receive \$91,400. From these funds the county will be paying for one contractor, two new convenience centers, one SPC, two collection tanks, one storage tank, two canopies, two pads, two crushers, one heater, two pumps, two antifreeze tanks, two absorbents, one DOT trailer.

## EPA set to declare Memphis area in compliance with smog standards

By Tom Christie of The Commercial Appeal

In a move that would give a boost to local economic-development efforts, the U.S. Environmental Protection Agency appears poised to declare the Memphis area in compliance with federal air-pollution standards.

EPA recently published proposals to reclassify Crittendon County and part of DeSoto County as being in attainment, or compliance, with the standard for ground-level ozone pollution. The two counties encompass the Arkansas and Mississippi portions of the local area that has categorized as nonattainment, or in violation of the standard.

The federal agency also has signaled its intention to reclassify the Tennessee portion of the nonattainment area — Shelby County — as being in compliance with pollution rules.

"EPA is proposing to determine that the Memphis, TN-MS-AR area is attaining the 2008 8-hour ozone national ambient air quality standard. ..." the agency said in a public notice published Feb. 11 in the Federal Register. The proposals are subject to public comment periods ending in March.

# Strategic Initiatives Overview

Each year, guided by Governor Bill Haslam’s priorities, TDEC’s organizational core values, and employee and stakeholder input, the department selects a set of strategic initiatives and key performance indicators (KPIs) to drive the department in accomplishing our mission. The department ensures the implementation of the initiatives by incorporating elements of operational objectives and KPIs into each employee’s Individual Performance Plan (IPP). We were able to successfully achieve:

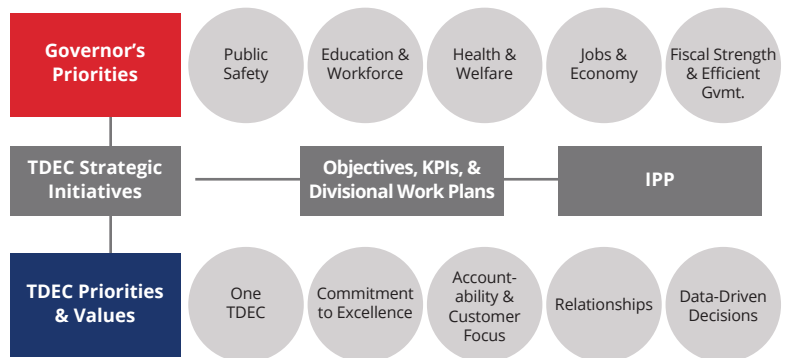
- The remediation and release of 104 properties for reuse or redevelopment through our Division of Remediation Brownfields and Voluntary programs;
- The recycling and diversion from the landfill of over 1 million pounds of material generated in Tennessee State Parks;
- The establishment of the Tennessee State Parks Conservancy, which will enable contributors to support programs across the park system especially historical, cultural, and recreational opportunities; and
- The increased availability of online services through our digitization efforts. Including the launch of an online grant management tool that allows TDEC to become a more streamlined, efficient and customer friendly organization.

We look forward as an organization to the continual development and implementation of initiatives that make Tennessee a great place to live, work, and play.

## FY 2017 Strategic Initiatives

- **Demonstrate improvement in Tennessee’s air, land and water resources for all Tennesseans**
- **Create a partnership-focused culture that leverages external resources to help accomplish the agency mission and goals**
- **Develop and maintain a culture that encourages and enhances employee engagement**
- **Increase efficiency and customer service by creating and deploying transformational digital strategies**
- **Develop and sustain a culture of organizational excellence and continuous improvement**
- **Reduce energy costs and consumption in State owned and managed facilities by measuring and controlling energy use, investing in increasing energy efficiency and renewable power generation, and creating an environment of operational excellence through implementation of a utility data management system as part of the *EmPower TN* initiative**

## Strategic Initiative Overview



## Key Operational Goal:

**Operate an effective and efficient environmental regulatory program.**

Key Performance Indicator (KPI)	KPI Baseline	KPI Target	4th Quarter
Percent of final actions made on complete BOE permit applications within the applicable regulatory time period	96.5%	100%	99.5%
Percent of compliant inspections (those not resulting in a notice of violation)	80%	80%	82%
Percent of non-compliant facilities returning to compliance within the specified terms of their notice of violation	85%	85%	88%

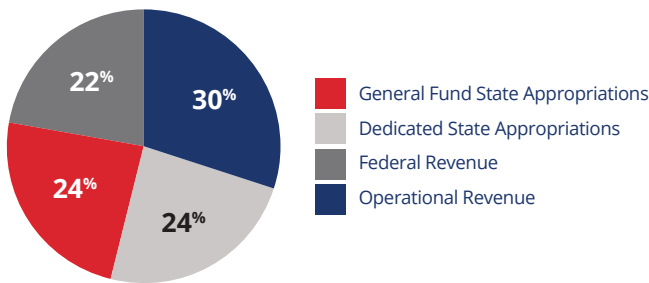
# Strategic Actions Drive Financial Performance

**Almost a third of TDEC’s revenue is money generated by TDEC programs.** These operational revenues are generated by both the Bureau of Environment and the Bureau of Parks and Conservation and include permitting fees, professional licenses, enforcement penalties, cabin and campground rentals, and restaurant and gift shop income. Several areas within Tennessee State Parks have shown continual growth over the last several years.

In particular campgrounds are showing a strong return on investment. Compared to 2012, campgrounds across the Tennessee State Park system have shown an impressive revenue increase of 67 percent. Ten campgrounds have completed capital improvement projects to modernize bathhouses and update campsites. Those improved campgrounds have shown a 94 percent increase in revenue over the same time period.

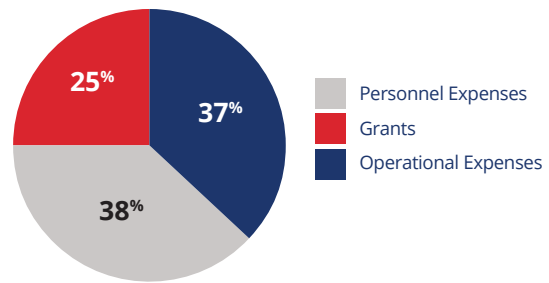
## Fiscal Year 2017 Revenues

<b>General Fund State Appropriations</b>	\$96,918,600	24%
<b>Dedicated State Appropriations</b>	\$94,135,900	24%
<b>Federal Revenue</b>	\$85,687,900	22%
<b>Operational Revenue</b>	\$119,480,400	30%
<b>TOTAL REVENUES</b>	<b>\$396,222,800</b>	<b>100%</b>



## Fiscal Year 2017 Expenses

<b>Personnel Expenses</b>	\$152,804,100	38%
<b>Grants</b>	\$97,898,400	25%
<b>Operational Expenses</b>	\$145,520,300	37%
<b>TOTAL EXPENSES</b>	<b>\$396,222,800</b>	<b>100%</b>



Part of what drives our financial performance is partnerships. The West Tennessee River Basin Authority (WTRBA) works continually to amplify its efforts by combining its unique assets with external resources to create innovative solutions. As an example, we recently partnered with Dyer County, the Dyer County Levee and Drainage District, the Department of Agriculture and the U.S. Army Corps of Engineers to stabilize approximately 4,500 feet of the bank of the Island No. 21 Chute.

Completed in the spring of 2017, the Dyer County Little Levee was a bank stabilization project on the Island No. 21 Chute of the main stem Mississippi River. The project preserves a USACE certified levee system that protects several homes, a number of businesses, public infrastructure and over 11,000 acres of highly productive agricultural lands. The project combined \$100,000 from WTRBA, \$200,000 from the Department of Agriculture and \$465,000 of private funds as leverage to complete a USACE project with a total cost of approximately \$3.75 million.

# TDEC Gets Dressed Up with SUIT Training

**In the spirit of business process improvement, our teams at TDEC are continuously evaluating their work for efficiency, transparency, and consistency.** Last year, Solid Waste Management Division Director Pat Flood noted some inconsistencies in the way staff performed landfill inspections across the state. He framed the problem in terms of America’s pastime, “We need to call balls and strikes the same in Johnson City and Memphis, and all parts in between.” This vision helped guide staff to develop Statewide Uniform Inspector Training, or SUIT.

Staff completed an inspection manual and developed an associated training course. With the manual completed Solid Waste Management staff member, Jerry Branham began offering training seminars that included both Solid Waste Management staff and the regulated community. Landfill operators receive a training certification credit and pay a nominal fee to offset the cost of the class.

SUIT has now been deployed for Class I, II, and III/IV landfills and Branham has trained more than 300 attendees. SUIT training is divided in two modules. During the classroom portion, each violation is covered individually along the regulatory citations. Photos are especially helpful to clarify more complex determinations. The second portion is hands-on. Inspectors and operators participate in a joint inspection at a landfill with each person completing an inspection checklist. Following the inspection, the attendees gather to discuss the checklists with the goal of having very similar findings.

By including solid waste directors and landfill operators in the training, the SUIT protocol has had the added benefit of improving compliance and fostering a sense of shared responsibility. While compliance training is not a new development, the hands-on aspect of this training encourages open communication with the regulated community about what to anticipate during inspections and provides a deeper understanding of the compliance expectations.

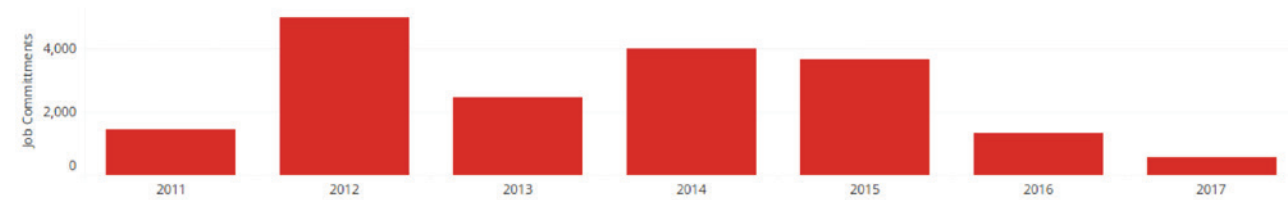
“I originally feared that the regulated community might find this frightening,” Branham says. “The opposite has been the case. They are embracing the inspection process.” SUIT has increased inspection consistency across the state and transparency between inspectors and regulated community. “Remember,” Branham notes, “The first step in keeping a solid waste facility in compliance is the knowledge of what constitutes a violation. So, dress up your landfill with SUIT training.”



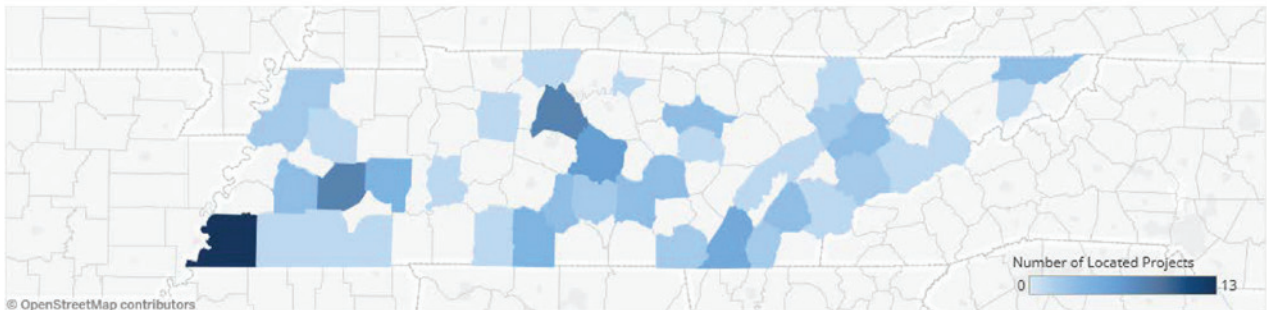
# Brownfield Redevelopment in Tennessee

**Brownfield redevelopment has become an increasingly important part of economic development and community revitalization in Tennessee.** Brownfields are properties which may contain real or perceived contamination or hazardous substances that hinder their redevelopment or re-use. During Governor Haslam’s administration, there have been 104 Tennessee Economic and Community Development projects that have located on brownfield redevelopment sites.

**New Job Commitments by Year**



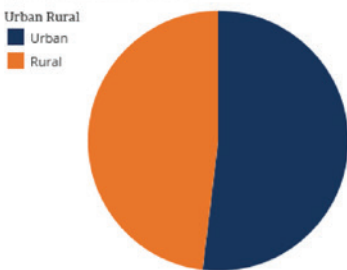
Since the beginning of 2016, Tennessee has announced 16 projects located on sites that have participated in TDEC’s brownfield program. These projects are expected to create 1,892 new jobs in the state and generate \$478,825,933 in capital investment.



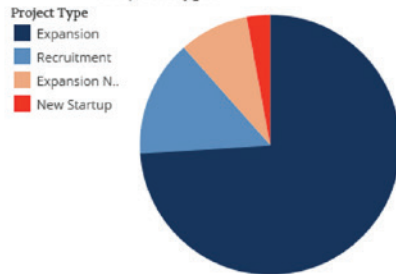
\* Projects that do not have an address will not appear on the map. Some companies that are in the process of new development may not have an address due to construction on an undeveloped site.

<h2 style="margin: 0;">104</h2> <p style="margin: 0;">Number of Projects</p>	<h2 style="margin: 0;">18,502</h2> <p style="margin: 0;">New Job Commitments</p>	<h2 style="margin: 0;">\$4,319,641,268</h2> <p style="margin: 0;">Capital Investment</p>
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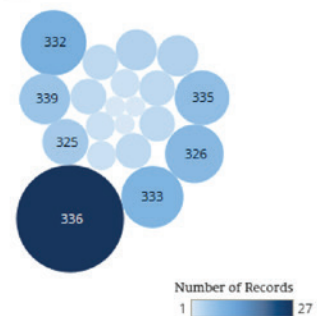
**Number of Brownfield Projects in Urban and Rural Counties**



**Located Brownfield Projects by Project Type**



**Located Brownfield Projects by 3 Digit NAICS Code**





# 80 Years of Park Excellence

**Throughout 2017 Tennessee State Parks hosted a series of 80th anniversary celebrations.** From its beginning in 1937, Tennessee State Parks has been dedicated to protecting and preserving the unique natural, cultural and historic resources of Tennessee. For eight decades our park system has fostered stronger communities and healthier citizens across the state through diverse resource-based recreation while conserving the natural environment for today and tomorrow — preserving authentic Tennessee places and spaces for future generations to enjoy.

Deputy Commissioner Brock Hill shares his vision for the anniversary. “Our 80th Anniversary is a great time to look back at some of the major milestones and projects that have come to define Tennessee State Parks. It’s also a great time to look forward to the legacy we’re building today. We have exciting announcements planned over the coming year to open up even more lands and opportunities to public use. We hope that by focusing on the core assets of each park our visitors will be able to create personal connections to these lands.”

To provide additional ways for visitors to individualize their park relationships, Tennessee State Parks created a GIS story board highlighting “80 Adventures for 80 Years.” The map plots unique adventures across the park system and encourages visitors to share their own experiences and photos using #TSP80. Activities range from historic adventures like the Native American Mounds at Pinson to adventure sports like whitewater rafting at Hiwassee/Ocoee to educational excursions like the replica cabin at David Crockett Birthplace.



The anniversary celebration began with a dedication of a new wetland observatory at Henry Horton State Park. The platform was the capstone on a project to return an underutilized portion of the park to its former wetland ecosystem.



T E N N E S S E E  
**State Parks**  
 80TH ANNIVERSARY



Tennessee State Parks was among the finalists for the National Gold Medal Award. The Gold Medal Award honors communities in the U.S. that demonstrate excellence in parks and recreation through long-range planning, resource management, volunteerism, environmental stewardship, program development, professional development and agency recognition.

## Park Visitation

<b>FY 2008</b>	30,692,850
<b>FY 2009</b>	28,410,067
<b>FY 2010</b>	28,404,662
<b>FY 2011</b>	30,290,336
<b>FY 2012</b>	31,079,848
<b>FY 2013</b>	29,898,889
<b>FY 2014</b>	32,063,130
<b>FY 2015</b>	33,443,584
<b>FY 2016</b>	33,944,861
<b>FY 2017</b>	37,025,015





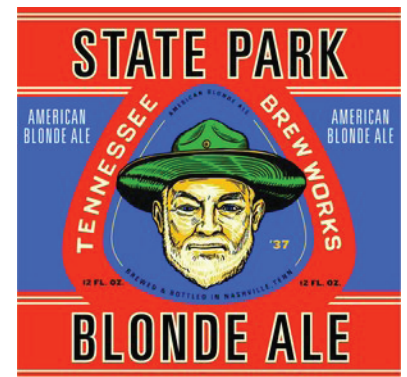
## Conservancy Will Benefit Parks

**The launch of the Tennessee State Park Conservancy marked an exciting milestone for TDEC and Tennessee State Parks.** The newly formed 501(c)(3) will provide an opportunity for corporations, foundations, and individuals to support multiple parks within the Tennessee State Parks system. To mark the occasion, the Conservancy hosted a launch party at the Bicentennial Capitol Mall State Park. With spectacular views of the State Capitol and the Nashville skyline, the park served as a powerful reminder of the value of special places.

“This supporting organization to Tennessee State Parks will make the park experience better for visitors,” said Deputy Commissioner of Parks and Conservation Brock Hill. “Individuals and corporate partners can directly contribute toward the sustainability and longevity of our statewide park system by augmenting our existing or funding new programs.”

Funds raised through the Tennessee State Parks Conservancy will go towards educational programs like field trips and outdoor classrooms, health initiatives like playgrounds, and special park projects like museum exhibits. Modeled after the National Park Foundation, the Tennessee State Parks Conservancy will make donated funds available to Tennessee’s 56 state parks on a grant-based system.

An early success of the Conservancy is a partnership with Nashville-based Tennessee Brew Works. To support the Conservancy they added a State Park Blonde Ale to their family of craft brews with \$.50 of every case sold donated by the brewer and an additional \$.50 per case donated by the distributor to support natural and cultural resources. The distinctive label was designed by local artist Bryce McCloud and features the likeness of revered State Naturalist Randy Hedgepath.



### TDEC Critical to Rescue and Response Efforts



**Gatlinburg area residents will never forget November 24, 2016** — a night when wildfires raged through the Great Smoky Mountains, wreaking havoc on homes and businesses in an area that routinely receives worldwide acclaim for its natural beauty and tourist attractions. Tennessee State Parks Chief Ranger and Emergency Services Coordinator Shane Petty won't soon forget it either.

Petty, a 25-year veteran of Tennessee State Parks, has seen a lot in his time with the state. Petty has led numerous rescue and recovery efforts, including the successful rescue or recovery of missing persons on more than 300 occasions. "I was called that night to report directly to the Tennessee Emergency Management Agency's emergency work station and put my fire response team on standby," Petty said. "We knew pretty quickly it was going to be a long road ahead for the Sevier County community."

The next day, Petty quickly assembled a team of eight park rangers to go into the areas of Great Smoky Mountains National Park to help battle the fires and provide medical support to the national park's fire team members. "Because of our training and certifications, we could work the fire line with them, treat them on the line, and then transport them to the ambulances," said Cummins Falls State Park Ranger Jeremy Vaden. "We brought a trailer full of fire line tools and medical equipment, but fortunately, we didn't have to treat anyone for injuries."

As Tennessee State Parks fire team members helped with firefighting efforts on the ground, Robert Brawner, environmental fellow for the Division of Air Pollution Control, was working closely with the U.S. Department of Agriculture to deploy a special air monitoring network to track smoke parameters for the health and safety of workers and the public. An internet link made real-time data available so that responders, the public and local and state government could stay continually informed of the conditions.





As the fires continued to rage, TDEC divisions issued guidance on managing and disposing debris. This guidance helped to facilitate prompt cleanup activities, enabling residents to move forward with their lives while minimizing potential public health and environmental issues. The document provided clarity to residents and responders around the handling and disposal of ash from buildings, identified which types of structures would need an asbestos inspection, and waived certain requirements regarding the sorting of wastes.

In addition to the guidance document, the Division of Solid Waste Management developed temporary solid waste solutions and fast-tracked permits. With more than 2,400 structures damaged or destroyed, a large volume of debris was ultimately headed for the Sevier County landfill. To ease this burden, TDEC permitted temporary landfills where debris can be stored for up to one year and a temporary metal recycling site in Gatlinburg which processed 1.5 million pounds of metal, including 3,000 vehicles. TDEC is also working to fast-track a permit for a new landfill in Sevier County, which saw its incoming volume increase fivefold, despite the temporary storage.

TDEC's Knoxville Field Office also proved critical. The office served as a go-to source of information for Sevier County residents, responders, and contractors every step of the way, working hand in hand to solve problems and provide direct assistance. The office also served as a drop-off location for donations and transported supplies to residents in need.

After the fires were contained, Governor Bill Haslam asked Commissioner Martineau to chair a task force to identify resources and expedite state assistance. The group identified more than \$45 million in existing state and federal resources available to the areas affected by the wildfires. The Governor worked with the General Assembly to appropriate an additional relief package worth approximately \$21.4 million.

"The task force was a collaborative effort among state agencies to help the local community bounce back from this horrific incident," Martineau said. "We were able to provide technical assistance to local wastewater utilities, financial assistance for temporary housing, marketing assistance to help the tourist industry rebound and more. Gatlinburg is, and will continue to be, the vibrant community and tourist destination it was before the fires. We are proud to have helped it get back on its feet."

# It's Ours | Clean Air

## Tennessee Has Cleanest Air Since the Industrial Revolution

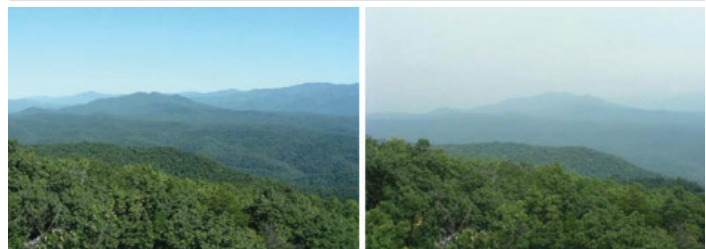
**This year marked an important milestone for air quality for Tennessee.** Recent U.S. EPA redesignations of Anderson, Blount, Knox, Loudon counties and the remaining portion of all of Roane County as “attainment” mean that entire state of Tennessee is now in compliance with federal air quality health standards for particle pollution, also known as particulate matter or PM2.5. These areas were the last remaining areas in Tennessee to achieve the designation.

The continuous air quality improvement has tracked closely with Tennessee’s economic prosperity, demonstrating that environmental improvement can go hand in hand with economic development. Not only did 2017 mark the statewide attainment for PM2.5, but also the state’s lowest unemployment rate ever. Since 1991, economic output in Tennessee has nearly tripled to \$300 billion and the population has increased by a third. Remarkably, during this same time period, the six major pollutants all drastically declined.

Formally achieving an attainment designation from EPA not only means air quality is measuring and meeting federal standards, but it also removes a potential barrier to economic development, growth and expansion. “This decision means more good jobs and healthier air for East Tennesseans as well as better views of the Great Smoky Mountains. Receiving federal attainment for particle pollution further shows that the air is demonstrably cleaner in Anderson, Knox, Blount, Loudon and Roane counties, and will attract more industries to East Tennessee,” U.S. Senator Lamar Alexander said.

For nearly five decades, local, state and federal governments have been monitoring, measuring, and working to reduce air pollution to benefit public health. TDEC has been on the vanguard of this effort, as Tennessee has seen nearly a 25 percent reduction in ozone pollution from 2000 to 2016 and a 50 percent reduction for particle pollution over the same period. Last year, Tennessee was also designated by EPA as attaining federal ozone standards statewide. This is the first time since air quality modeling and monitoring started in the 1970s that Tennessee has been designated attainment statewide for both ozone (smog) and particle pollution (soot).

“Tennessee’s air is as clean as it has been since the beginning of the industrial era. We are a state that protects the environment while growing our economy - it is not an ‘either - or’ scenario in Tennessee. This announcement is another indicator that we can achieve both.”  
— Governor Bill Haslam



**Good Visibility Day**  
Visual Range: 124 miles

**Bad Visibility Day**  
Visual Range: 26 miles

According to EPA, particle pollution contains microscopic solids or liquid droplets that are so small that they can be inhaled and cause serious health problems.

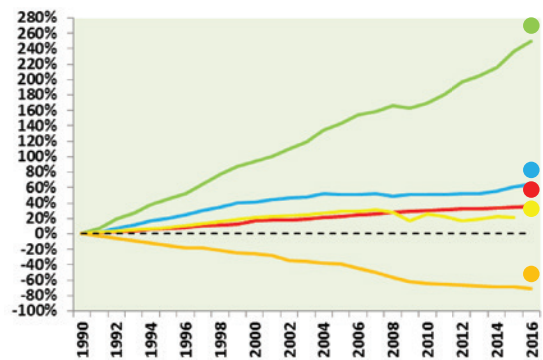
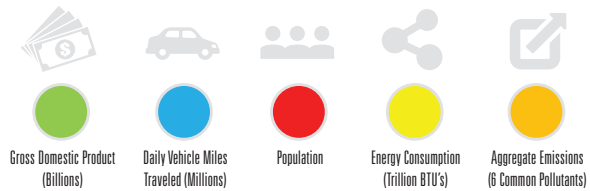
Fine particles less than 2.5 micrometers (PM2.5) are the main cause of reduced visibility (haze) in parts of Tennessee.

Meeting federal air quality standards for Tennessee is a leadership relay spanning generations. In 1970, U.S. Senator Howard Baker was a primary author of the seminal Clean Air Act — the national foundation for addressing air pollution. As Governor in the 1980s and a U.S. Senator today, Lamar Alexander has been an effective, responsible force to promote clean air and reduce the impact of pollution all across the state, including special places like the Great Smoky Mountains National Park. As Mayor of Chattanooga in 2004, current U.S. Senator Bob Corker was a regional leader for community action to help achieve cleaner air sooner — and an attainment designation from EPA that helped make it possible for Volkswagen to eventually bring more than 10,000 jobs to Hamilton County and Tennessee.

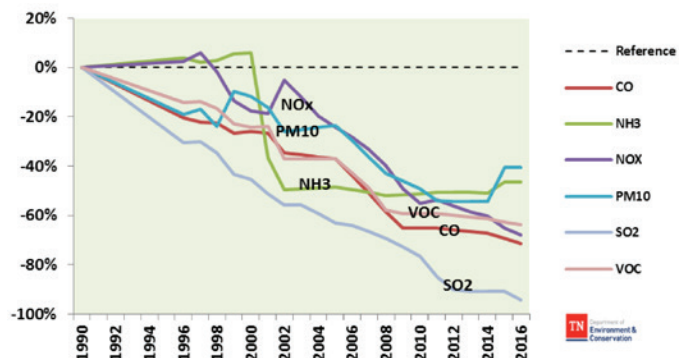
Over the years, private sector companies and TVA have invested in pollution controls to reduce oxides of nitrogen from both industrial sites and electric power plants to help reduce ozone formation; scrubbers on power plant smoke stacks are removing particles before release into the atmosphere; and conversions to natural gas as a fuel supply are keeping air clean by reducing the amount of pollution formed in the first place. Today, TVA's generating fleet is emitting significantly less pollution while still providing safe, reliable, and affordable power for Tennessee and parts of six other states.

Actions by local communities and individuals have promoted and sponsored a variety of emission reduction activities such as driving and idling less, using public transit, combining trips, switching to cleaner fuels, lowering truck speed limits and driving more fuel efficient cars. Improvements in fuel economy and engine efficiency have reduced total mobile source emissions from cars and trucks, even though vehicle miles traveled in Tennessee have increased by more than 50 percent over the past 25 years.

“This accomplishment represents a lot of work and commitment by so many people, from the state Air Pollution Control Board and our four local air programs to an array of individuals and industrial sources, but I am especially proud of our staff,” remarked Commissioner Bob Martineau. “Clean air is essential to our health and quality of life, and many of our staff members have dedicated their careers to this effort. I am honored to work alongside them every day.”



### Six Major Air Pollutants





## Innovation Elevates Sampling Efforts

**TDEC partnered with the University of Memphis this year on an exciting project to develop an Unmanned Aerial Vehicle (UAV) or “Hydradrone” that is capable of collecting water samples in a variety of environmental conditions.** Working directly with the Division of Water Resources, Dr. William Alexander, Assistant Professor of Chemistry and Dr. Eddie Jacobs, Director of the DRONES Research Cluster with the FedEx Institute of Technology at the University of Memphis, led a team of students to design, develop and test the UAV.

The Hydradrone’s complex mission involves landing on water, collecting a sample, some preliminary surface water analysis and then taking off from the water’s surface. Caleb Harris, one of Dr. Alexander’s students on the project, remarked, “Our involvement began as a senior project for myself and two other mechanical engineering seniors, but as it grew we saw the potential for so much more than just a senior project. We saw that our UAV could improve water sampling methods and help protect both people and the ecosystems affected by water quality.”

The Division of Water Resources immediately recognized the potential impact. Heather Meadors from the Memphis Field Office adds, “This cutting edge technology can drastically improve the way we collect water samples for a variety of purposes from routine watershed monitoring to emergency spill response. Possibilities include monitoring waterbodies that would be otherwise inaccessible due to environmental conditions and also allowing us to gather important data during environmental spills with greater speed and reduced risk to the people collecting the samples.”

According to Dr. Alexander, “The partnership with TDEC has elevated our efforts to reach beyond the academic lab and into the field where I hope our work can begin to directly affect the safety and well-being of people’s lives. We believe this project has the potential to directly impact the regional community, utilities and governmental agencies; yield ‘big data’ streams from environmental water quality observation and analysis; and will substantially expand the research portfolio of DRONES into new territory.”

Dr. Ronné Adkins from the Memphis Environmental Field Office shares his excitement for the project. “This project is an excellent opportunity to merge the classroom with real-world applications that will have lasting impacts on the future of water sample collection and efforts to minimize occupational risk to employees. We were pleased to be able to support this project not only with financial resources, but also by providing a proving ground for scientific research efforts.”

# Septic System Document Digitization Effort

**With more than one million total records and dozens of daily request for these records, the Division of Water Resources recognized that while challenging, the digitization of septic system records is a top priority.** TDEC is striving to enhance customer service by transferring septic system documents across the state to an easily accessible and searchable online platform. These documents are in high demand by the public and are used frequently in property transactions. Devising a method to efficiently prepare, scan and upload records with aging paper, hand-drawn maps and large format plats was a complex process that took trial and error, but now the work is progressing quickly.

As of June 2017, septic system records for properties in Robertson, Hawkins, Johnson, and Clay counties were fully uploaded to the database, with work actively continuing to process the records for Bradley, Cumberland, Marshall, Sullivan, Unicoi, Washington, and Wilson counties. Robertson County Mayor Howard Bradley recognizes the impact of the project. "This is an enormous technological step forward for our citizens to easily access groundwater files online. This will facilitate better planning, preparation and construction methods for decades to come. We are honored to be the first community to have this resource at our fingertips and are grateful to TDEC for their vision for the future."

For those counties not yet digitized, customers seeking records must contact a county office or one of TDEC's eight Environmental Field Offices to obtain copies. TDEC is required retain these records in perpetuity; therefore, when responding to a septic system file request, TDEC staff sift through more than 50 years of files to find the correct documents. This can be a daunting and sometimes unfruitful search because the record may have been filed under the original property owner's name, street address or subdivision.

"This new digital system will not only allow the public to search for files at their own convenience, but it will also allow TDEC technical staff to spend more time and energy responding to customers in the field, ensuring our state's groundwater is safe and clean," said Tisha Calabrese-Benton, Director of Division of Water Resources. "When we began this project we knew we could reduce paper holdings, provide more convenient access to records, and create staff flexibility, but an important unexpected benefit has been the ability to return more productive record searches enabling many customers to locate septic records dating back decades."



**To provide the customer with the most convenient and streamlined experience, TDEC is upending its paper process from the root. Beyond scanning existing paper records, digital permit applications and inspection forms are completing the digital workflow. Toughbook tablets enable Water Resources staff to access records and to complete inspection reports in the field.**

# Green Pool Leverages Resources

**On the Tuesday after Labor Day, most public pools are closing for the season, not celebrating ribbon cuttings.** September 6, 2016 marked an exciting day for Loretto, Tennessee, as project partners gathered

with local residents to celebrate the opening of the new pool that will serve as the central feature of the city's recreational complex. Among many sustainability elements, this pool has a solar water heater to extend the swimming season. The heater is a great example of how an eco-feature can benefit the environment and the community. Many of the features of this complex will result in reduced utility costs and reduced maintenance expenses.

Loretto leadership used a thoughtful approach in crafting the pool project. The former pool was decommissioned in 2011 leaving the residents with minimal recreation options. Loretto then began a process to develop a recreational master plan. Part of the community input process involved a questionnaire. The results unanimously supported the need of a pool facility, but instead of simply replacing the old pool with a traditional community pool, the city began a quest to develop Phase 1 of the recreational master plan with the pool as the cornerstone.

Creativity, vision, and partnership were at the heart of the project from the beginning. They imagined a recreation complex centered around a pool that would also house the offices of the Loretto Parks and Recreation Department. Additionally, Loretto would address another need of the community and include a walking track around the perimeter. The project found a partner in the design team led by project engineer Andy Somers from Croy Engineering. Throughout the project, he worked tirelessly with the city to meet the needs of the community, while addressing the state's desire to showcase sustainability features.

To fund such an ambitious project, Loretto would have to leverage resources from multiple sources. Lori Munkeboe, Director of the Office of Sustainable Practices commented, "We were extremely pleased to contribute Clean Tennessee Energy Grant monies as a match to expand the Recreation Education Services grant funding and assist Loretto in making this amazing project a reality." The total project cost just over \$1.1 million with funding from Loretto, a Local Park and Recreation Fund Grant, and a Clean Tennessee Energy Grant.

The community and project stakeholders are excited that the project has such strong social and environmental benefits. Additionally, Recreation Educational Services Director Gerald Parish noted, "We now have a model in swimming pool development for the state of Tennessee using recycled products and energy efficient equipment to help preserve our environment. This pool will serve as a demonstration site for other communities to replicate."



Commissioner Bob Martineau joined Loretto Mayor Jesse Turner, State Senator Joey Hensley and State Representative Barry Doss in the ribbon cutting for Loretto's new community pool and recreational facility.



This pool was built with fly-ash concrete – a byproduct of coal combustion. It uses a recycled glass bead filter and includes other low-impact features like pervious pavement and bioswales to manage stormwater runoff in addition to high efficiency pumps and LED lighting.



# In the Trenches at the York Home

**When America entered into World War I on April 6, 1917, our nation and our state were forever changed.**

“The Great War propelled Tennessee into the 20th century,” says Dr. Michael Birdwell, chair of the Tennessee Great War Commission. “Although it was a war of staggering destruction and devastation, it also paved the way for enormous opportunities. Sgt. Alvin C. York earned a Medal of Honor and used his fame to improve public education for rural Tennesseans. The story of the war abroad and at home needs to be relearned for a new generation.” To help share the message, Tennessee State Parks is honoring the Great War Centennial by expanding the interpretive offerings at Sgt. Alvin C. York State Historic Park.

Visitors of all ages can gain a greater understanding of WWI as well as every life in the early 1900s through daily guided tours of the York family home, a remodeled visitor center with vintage store displays, and an experiential recreation of the trench system used during WWI combat. Park Manager Josh Waggener explains, “Trench warfare developed out of necessity due to the technology being used. Machine guns and heavily artillery meant that men had to go deep into the earth to protect themselves.”

Reenactors from across the nation come to the park to interpret the life of the doughboys by demonstrating their living quarters, their weaponry, and their mindset. Deborah York, granddaughter of Sgt. York and President of the York Institute, shares Sgt. York’s original attitude towards the conflict, “He did not want to go. He didn’t understand what was happening.” Despite his initial reluctance, Sgt. York went on to become one of the most decorated soldiers in WWI, earning more than 40 awards including the Medal of Honor and the French Croix de Guerre.

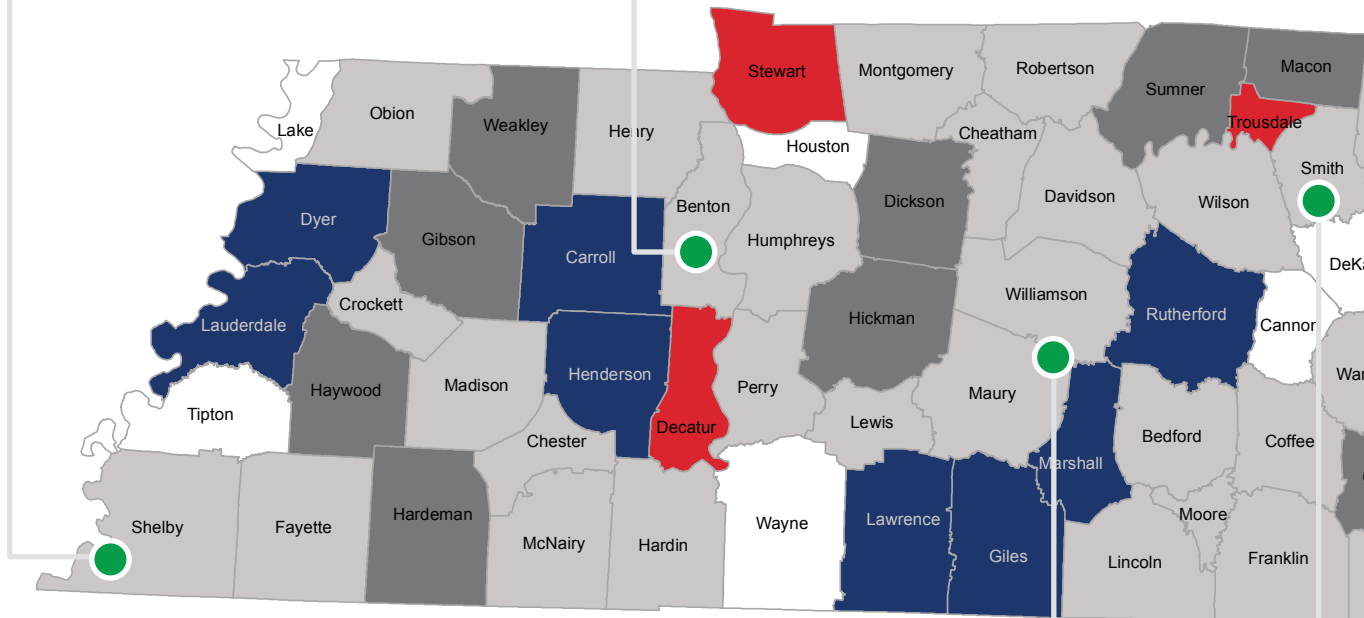
The park unveiled the recent improvements and celebrated Veterans Day with a living history event on November 11, 2016. The day began with a special ceremony honoring Sgt. York and the living veterans of Fentress County. Throughout the weekend, reenactors depicted various scenes from trench life, and WWI stunt planes conducted air shows. The event culminated with the reenactment of a trench battle including simulated mustard gas and the complete destruction of the German trench. Throughout the entire Great War Centennial commemoration, the park will be hosting living history events to help visitors interpret the history of the York family and remember “the forgotten war” and its impact on Tennessee.



The Office of Sustainable Practices was on hand to celebrate Tiger Blue Goes Green and award \$264,000 for energy efficiency upgrades at the University of Memphis.



Camden awarded \$264,000 Local Park and Recreation Fund grant for improvements to Camden City Park.



Spring Hill awarded \$26,410 for energy efficiency projects in city facilities including City Hall, water treatment plant, and public library.



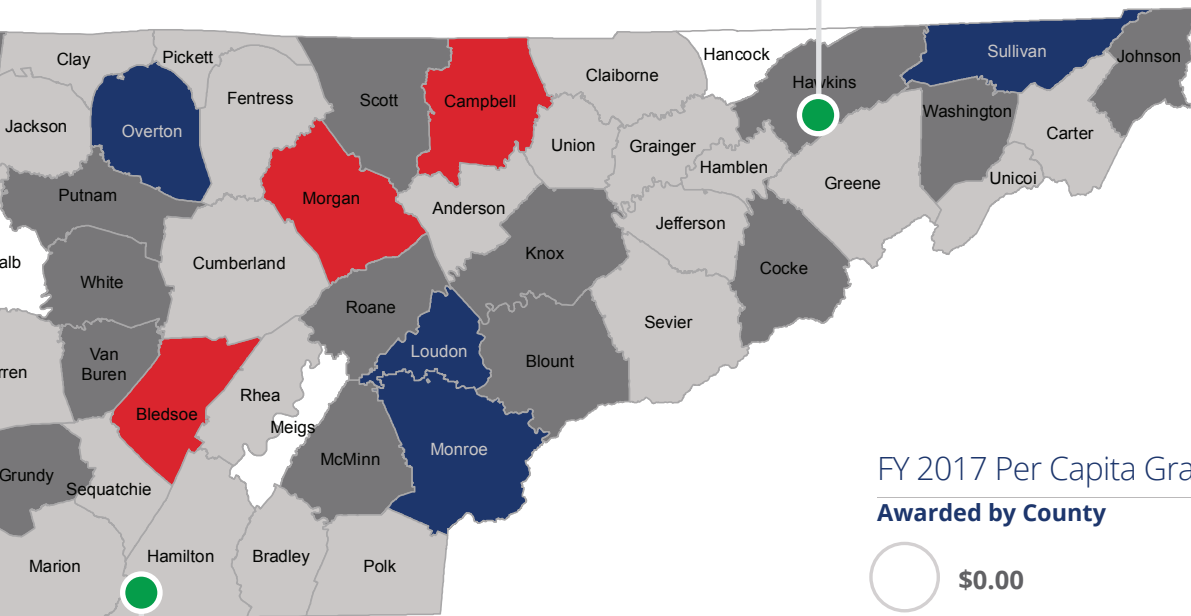
Town of Carthage awarded \$1,592,000 loan from Drinking Water State Revolving Fund with an interest rate of 1.44% and \$398,000 in principal forgiveness.

# TDEC Dollars at Work



Recreation Education Services awarded \$500,000 to Church Hill to develop the new River Recreation Park.

TDEC is pleased to support the work of communities across the state to improve public health, enhance the environment, and offer outstanding recreational opportunities. In FY 2017 our largest grant programs including Materials Management, Used Oil, Clean Tennessee Energy, and Recreation Education Services awarded just over \$18.6 million. Additionally the State Revolving Fund Loan Program provided financing for more than \$65 million in water and waste water projects.



FY 2017 Per Capita Grant Dollars Awarded by County



Dr. Shari Meghreblian presents the Tennessee Student Environmental Alliance with a Tennessee Healthy Watershed grant.

# Our Mission

**The Tennessee Department of Environment and Conservation exists to enhance the quality of life for citizens of Tennessee and to be stewards of our natural environment by:**

- Protecting and improving the quality of Tennessee's air, land, and water through a responsible regulatory system;
- Protecting and promoting human health and safety;
- Conserving and promoting natural, cultural and historic resources;
- Providing a variety of quality outdoor recreational experiences.



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