



## 2018 Governor's Environmental Stewardship Award Winner

### **Winner: Crosstown Concourse**

Shelby County

Category: Building Green

The Crosstown Concourse is the metamorphosis of an abandoned Sears-Roebuck Distribution Center into a 1.5 million square foot “Vertical Urban Village” embracing the arts, education, and healthcare. This building, located at North Parkway and Watkins Street in the Crosstown neighborhood of Midtown Memphis, was originally constructed in 1927 and by 1965 was the region’s largest employer. Unfortunately, due to urban disinvestment and suburban expansion, the structure was abandoned in 1993.

In 2007, the structure was purchased by a local philanthropist, who in 2010 was approached by a local start-up art organization who wanted to relocate their operation to the building. After a six-month feasibility study, a group of nine local institutions made their ideas a reality.

Both design and financing for the \$200 million project, occurred in tandem between 2011 and early 2015. Crosstown Concourse celebrated its grand opening in August 2017, almost 90 years to the day from the building’s first opening in 1927. When the building opened, there were 41 office and retail tenants, bringing 700 plus employees to the neighborhood. There are 265 apartments within the building, as well as a charter high school, YMCA, performing arts theater, and artist residency studios. This total project concept provides a vital civic heart for the community.

While LEED certification was not a project goal at the outset, the design team made significant decisions that led to Crosstown Concourse’s LEED Platinum designation in late 2017. In addition to preservation of the Sears building, daylighting strategies were incorporated, and more than 65 million pounds of material, equivalent to 94% of all waste produced during the construction demolition process was recycled. Vintage windows, which are 60% of the building façade, were restored as were seven million bricks. This designation qualifies Crosstown Concourse as the largest historic adaptive reuse project in the world. Crosstown Concourse is also seeking WELL certification through the WELL Building Institute.

The Crosstown Concourse project shows that even the most unlikely development challenges can be successful given the right circumstances. After sitting abandoned for over two decades, the existing building posed a quandary: too large to redevelop and too expensive to demolish. The Crosstown Concourse teaches us what can happen when the typical model for development is put aside in favor of local reinvestment and direct community collaboration. Crosstown Concourse demonstrates what is possible when multiple civic organizations committed to restoring a community are paired with patient capital and civic leaders determined to see their city improved.



## 2018 Governor's Environmental Stewardship Award Winner

### **Winner: Hytch**

Davidson County

Category: Clean Air

Hytch LLC, a Nashville-based technology company, launched their *Hytch Rewards* smartphone application, which validates, tracks, and rewards ridesharing behavior through GPS tracking. The app is appropriate no matter the method of transportation including car, bus, or train. In the first two months of the launch, 3,300 individuals downloaded the app and banked over 630,000 vehicle miles not driven. This rate of adoption demonstrates that cash rewards can serve as a rallying point and a very effective source of motivation for commuters who decide to share more rides. Within these two months, the use of the app resulted in 178 fewer tons of carbon emissions or the equivalent of 12,000 trees saved.

This first-of-a-kind technology was funded by community grants and brand partnerships with companies and organizations like Nissan, Sprint Absolute Wireless, Reliant Bank, and Goodwill Industries of Middle Tennessee. *Hytch Rewards* allows individuals to earn mile-by-mile cash rewards whenever you share a ride, including carpooling, public transportation, and ride-hailing services. When a ride is complete, users receive a trip summary showing environmental impact, trees saved, and cash rewards earned. Payment is delivered to the user in \$10 increments via PayPal.

\$11,000 has been paid back to users in just the first two months of the rewards program. If current trends continue, that will mean over \$66,000 in the calendar year 2018. Public awareness campaigns, such as the "Hytch with Leaders" video features a wide range of bipartisan community leaders, from senators to mayors, Tennessee Department of Transportation leaders to private company presidents—all of whom address their own personal participation in making environmentally-conscious decisions, including ridesharing. Interns from Vanderbilt, MTSU, Belmont University, and Lipscomb University have joined in to educate citizens and provide outreach awareness.

Hytch received the 2016 Nashville Area Metropolitan Planning Organizations "*Innovation Award*"; a 2016-2017 Federal Congestion Mitigation and Air Quality Grant; and most recently, in 2018 were awarded Nashville Technology Council's "*Emerging Technology Company of the Year*." These accomplishments are serving as the business model for a nationwide expansion this year.

Success in Middle Tennessee has already attracted sponsors who wish to fund additional rewards in cities like Memphis, Chattanooga, and Knoxville. With *Hytch Rewards*, communities everywhere have a simple tool to help promote and accelerate their transition to a smarter, greener transportation system.



## 2018 Governor's Environmental Stewardship Award Winner

### **Winner: Knoxville Partnership for Low Income Weatherization Assistance**

Knox County

Category: Environmental Education and Outreach

In the past two years, numerous Knoxville partners, including TVA, Knoxville-Knox County Community Action Committee (CAC), City of Knoxville, Knoxville Utilities Board (KUB), Alliance to Save Energy, Socially Equal Energy Efficient Development (SEEED), and several others, worked to implement solutions for low income households to gain better control of utility costs, including the Round it Up and Knoxville Extreme Energy Makeover (KEEM) programs for energy efficiency retrofits of nearly 1,500 homes..

Round it Up was launched by KUB in 2015so that KUB customers could voluntarily allow their utility bills to be rounded to the next dollar, with 100% of the funds earmarked for the CAC's weatherization assistance program for low-income residents.

At the same time, the partners developed and were awarded more than \$15 million from TVA for KEEM, a two-year program to weatherize 1,278 lower-income homes and provide energy efficiency education to better equip the program participants to manage their utility costs.

Through general education and outreach, KEEM leveraged the *Savings in the House* educational campaign, developed before the start of KEEM, to encourage low-cost and no-cost energy efficiency behavior changes. Also, KEEM partners shared their strategies for successful energy efficiency education and outreach through presentations at national and regional industry conferences.

Extra effort was made to reach specific demographics and community groups that could otherwise be underserved. All KEEM and *Savings in the House* print materials were available in English and Spanish, and workshops were also available with Spanish translation. To reach lower-income neighborhoods, a door-to-door campaign was organized through Socially Equal Energy Efficient Development (SEEED). The goal was to teach community members in person about the benefits of energy efficiency.. SEEED's program also helps at-risk young adults gain job readiness skills. Through partnerships to support outreach efforts for the weatherization programs, SEEED trainees learned about aspects of home weatherization and assisted in workshop delivery and door-to-door outreach.

The impact on the community is evident. Annual energy savings are estimated at more than 6 million kWh or an average savings of 32% per home. With the average age of the homes at 68 years, improved quality of life and comfort for the participants were added values of the programs. Over 1,700 residents were educated through 145 workshops, thus empowering families to take control of their energy bills. And lastly, these projects brought \$12.2 million of direct economic impact to the local community.

This Knoxville partnership serves as a model for communities on responsible resource use, promotion of regenerative economies, and social equity through Tennessee.



## 2018 Governor's Environmental Stewardship Award Winner

### **Winner: Whites Creek High School**

Davidson County

Category: Environmental Education and Outreach (Schools)

In 2017, the Whites Creek Community Club provided 4 acres of community garden space to Whites Creek High School for the production of soybeans. With \$10,000 in grant money from the Ford Next Generation Learning and a Ford pickup truck, the students were on their way to traveling across the United States and Canada. Now, this may not seem particularly innovative *except* all the while; the students were moving across the country and using a renewable and alternative fuel they made themselves: biodiesel. In their biodiesel-fueled Ford F-250, students traveled to 14 different high schools, and various colleges and universities such as the University of Ohio, the University of Guelph, the University of Kentucky, and the University of Florida. These students shared knowledge that demonstrated that high schoolers can be active contributors in the area of greener energy and that the alternatives to common fossil fuels can be implemented.

In place of regular fuel for their travels, Whites Creek High School students grew the soybeans and then harvested and pressed (Ag Oil Press) the soybeans for oil. They made 60 gallons of soybean oil per acre. The soybean oil was then heated to 120 degrees Fahrenheit and mixed with chemicals, such as methanol, in their biodiesel processor. This process causes transesterification, which is the separation of glycerin from the vegetable oil. What remained was biodiesel. This project allowed the National FFA Organization student members to be involved in Supervised Agricultural Experience Programs for renewable energy and the promotion of environmental advocacy to the National FFA organization at the regional, state, and national level.

The Whites Creek High School biodiesel project provided an opportunity for both community members and the citizens of Tennessee to see an example of biodiesel production and use in action. Anyone can use this as the inspiration to produce their biodiesel as part of a hobby project, school program, or business enterprise. Whites Creek has and continues to teach others about making biodiesel. The Whites Creek Community Club has hosted student speakers to discuss biodiesel production, and Whites Creek Students spoke at the Nashville Food Summit in 2017. Additionally, visiting National FFA members have come to learn about the program. During the summer of 2017, Whites Creek High School students spoke to the executives of Ford Motor Company through an opportunity made possible by Ford Next Generation Learning. Visiting teachers have come from a number of States, including Hawaii, to see the program firsthand.

By promoting the use of cleaner energy and providing alternate solutions for cleaner Tennessee air, current environmental issues are being addressed. From growing soybeans to the Ford Motor Company, Whites Creek High School is leading the way in sustainability.



## 2018 Governor's Environmental Stewardship Award Winner

### **Winner: Montgomery County Energy Upgrades**

Montgomery County

Category: Energy and Renewable Resources

In October of 2016, the Montgomery County Government partnering with Siemens Industry, Inc. completed a year-long, large-scale lighting retrofit and upgrade of the HVAC system in the Montgomery County Historic Courthouse, Courts Center, Jail, Health Department, and the Veterans Plaza property. Over 23,000 lights and fixtures were retrofitted with LED bulbs, and three chillers and four boilers were replaced with more efficient units from a local business and Tennessee Green Star Partner, Trane. Two 500-gallon hot water storage tanks were replaced, four cooling towers were refurbished, and the HVAC automation and variable frequency drive (VFD) systems were upgraded to increase efficiency at multiple locations. An ozone laundry treatment system for the jail was installed, as well as upgrades to over 600 toilets at various facilities with low flow components.

The Tennessee Department of Environment and Conservation's Office of Energy Programs and the Clarksville-Montgomery County Green Certification Program provided necessary technical assistance for this project by helping the County determine which improvements would be most beneficial. The connection with Siemens was a result of this collaboration, as well as the decision to approach the project as a whole and not in phases.

This five million dollar retrofit and upgrade is a self-funded energy efficiency project, estimated to save Montgomery County Government \$358,827 in the first year. Data collected from October 2017 through February 2018 show a total savings of approximately 674,200 kWh. Natural gas savings during this same period is approximately 35,100 Ccf and water savings total approximately 5,046,700 gallons. As a result of the lighting retrofit and HVAC upgrades, the County can take on additional projects using the money that would have been spent on utilities or short-term equipment fixes. Additionally, any future savings will continue to allow them to take on more projects and increase their sustainability footprint.

Montgomery County won a special award for "Outstanding Efforts in Energy Efficiency" at the October 2017 Clarksville-Montgomery County Green Certification Awards banquet and the City of Clarksville is a Valley Sustainable Gold Community.

Montgomery County Mayor Jim Durrett explained, "This project is very unique, as it will be funded, through the savings it generates over time. We will not only be upgrading and replacing much needed items like chillers, boilers, and lighting but at the same time installing equipment that is much more efficient, saving us money on utilities for years to come."



## 2018 Governor's Environmental Stewardship Award Winner

### **Winner: Bells Bend Conservation Corridor**

Davidson County

Category: Land Use

The mission of the Bells Bend Conservation Corridor is to promote and protect the rural character of Bells Bend. Members are working to establish an outdoor recreational, cultural, and residential conservation district that serves as a county, state, and regional planning model for open space preservation. The Beaman Park to Bells Bend conservation area is a north-south corridor between Beaman Park and the oxbow in the Cumberland River that forms Bells Bend, encompassing roughly 34 square miles or 22,000 acres. Old Hickory Boulevard is the main north-south transportation corridor through the area and ties together its northern and southern ends. This area is book-ended by two of Metro Nashville's newest and largest parks, Beaman Park in the north and Bells Bend Park in the south. The western boundary is located toward the Davidson-Cheatham County line, and the eastern boundary is found toward Briley Parkway on Highway 12. Currently, 350 acres are in conservation easements held by the Land Trust for Tennessee.

Two major programs that benefit from the Bells Bend Conservation Corridor include the Share to Share Program and the Scholarships for Camp Bells Bend Beaman. The goal of the Share to Share program is to provide access to fresh, locally grown produce for food insecure families in Nashville. The Bells Bend farm is one of four local farms that can donate to families in need each summer. Beaman Park to Bells Bend Conservation Corridor has formed a partnership with the Camp Bells Bend Beaman and launched the Beaman Park to Bells Bend Conservation Corridor Scholarship Program which provides flexible pricing in service to camp families and the community. Camp Bells Bend Beaman is a day camp program that connects children to nature. The camp program is designed to provide outdoor play, exploration, and education through activities and experiences at two of Nashville's beautiful nature parks, Bells Bend Outdoor Center and Beaman Park Nature Center.

By conserving both the natural and cultural resources of the area, the Beaman Park to Bells Bend corridor offers the citizens of the Nashville and Davidson County the rare opportunity to experience Tennessee as it was. As stated by the Bells Bend Conservation Corridor's Tyler Skelton "Beaman Park to Bells Bend offers the true Tennessee."



## 2018 Governor's Environmental Stewardship Award Winner

### **Winner: Window Cliffs State Natural Area**

Putnam County

Category: Natural Heritage

On Friday, April 7, 2017, the State of Tennessee celebrated the momentous opening of the Window Cliffs State Natural Area, a rugged 275-acre area in southern Putnam County. Window Cliffs is home to breathtaking limestone bridges and “windows,” rare plant species and wildlife habitat, and over two miles of scenic Cane Creek.

For over 40 years, Window Cliffs had long been considered an important area for land conservation and preservation. In 2014, after years of both interest and discussions between private landowners and the State of Tennessee, multiple landowners desired to sell the land to the State. Due to the very complex nature of the property transactions with multiple landowners, and a desired quick acquisition time, the State of Tennessee turned to the Land Trust for their expertise. It was the desire that the Land Trust for Tennessee step in, acquire the property, and make this dream a reality.

From 2014 to 2017, the Land Trust led a complex and multi-faceted land acquisition effort that bridged the needs of both private landowners and the State of Tennessee. The result is the permanent protection of Window Cliffs - a hugely significant land conservation win that was decades in the making.

Located within the dissected portion of the Eastern Highland Rim, Window Cliffs is a prominent geological cliff-top feature that consists of a very narrow, elongated ridge that lies in the neck of an incised meander of Cane Creek. At about 150 feet wide at its base, it is only a few feet wide on the narrow cliff-top, some 200 feet above Cane Creek. A fragile landform underlain by Mississippian and Ordovician-aged sedimentary limestone, Window Cliffs continues to undergo erosion and dissolution. This geologic process has created the prominent natural bridges or “windows” for which it is named.

The cliff face supports a Central Interior Calcareous Cliff and Talus plant community, and it is only one of two known Tennessee locations of the state-endangered plains muhly (*Muhlenbergia cuspidata*). The state-listed northern white cedar (*Thuja occidentalis*) occurs at the base of the cliff. The best quality forest communities in the natural area consist of dry-mesic oak and hickory in the upland, while the mesic coves support both American beech and eastern hemlock.

2.4 stream-miles of Cane Creek flow through the natural area along with Phelps Branch, a tributary to Cane Creek. A few small cascades, steep slopes, narrow ledges, and a 20-foot waterfall occur along Cane Creek. Many of these features can be observed along the 5.5-mile loop that leads from the parking area to the Window Cliffs. The trail traverses 18 creek crossings, old fields, and successional forest through a section of the natural area acquired to provide public access to the “Windows.”

This 85th State Natural Area adjoins Burgess Falls State Park, one of the most popular parks in the State because of its outstanding waterfalls and overlooks. The important addition of Window Cliffs State Natural Area gives visitors the opportunity to have an extended stay and experience beyond that of just Burgess Falls State Park.



## 2018 Governor's Environmental Stewardship Award Winner

### **Winner: Country Music Hall of Fame®**

Davidson County

Category: Materials Management

In 2016, the Country Music Hall of Fame and Museum launched a comprehensive sustainability program that promoted civic sustainability in Nashville and Middle Tennessee. The Country Music Hall of Fame focused on a variety of initiatives: reducing food waste through edible food donations and composting; increasing recycling with the introduction of trash and recycling receptacles in offices back and front of house; building an organic, hydroponic, rooftop garden to grow produce for use in Museum restaurants; and educating 300 staff to maximize impact of the Museum's sustainability activities. As a result of these activities, the Country Music Hall of Fame and Museum diverted 216,124 pounds of waste from landfills in 2017. This reflects 40% of the Museum's total waste and an overall increase in waste diversion of 25% between the years of 2016 and 2017. With the use of the new front of the house recycling, compost, glass, and trash separation stations—funded by a grant awarded from the Tennessee Department of Environment and Conservation—the Museum expects increased results in 2018.

Through a partnership with the Nashville Rescue Mission, 13,800 pounds of food were donated which in turn fed more than 25,000 people. Inedible food was composted through a contract with a local company. 123,356 pounds of materials were recycled; a partnership for glass recycling was secured which resulted in 16,600 pounds of recycled glass. The 12 by 12 foot hydroponic, rooftop garden produced more than 1,200 fresh vegetables, along with multiple pounds of fresh herbs. The harvest was used in the Museum restaurants and at third-party events.

Since the launch of the Museum's sustainability program, sustainable practices are celebrated and encouraged as corporate values and regular aspects of the institution's culture. In 2017, a quarterly meeting of the Board of Officers and Trustees was dedicated to this initiative, raising awareness and generating support for the Museum's efforts among leadership. Signage is now posted in three languages, ensuring more effective communication among all members of the Museum staff. Receptacles and other materials are color-coded, and sustainability is a topic commonly addressed in all staff meetings.

To the over 1.2 million guests a year that visit, the Country Music Hall of Fame proudly serves the Nashville community as an advocate of sustainable practices.





## 2018 Governor's Environmental Stewardship Award Winner

### **Winner: General Motors of Spring Hill**

Maury County

Category: Sustainable Performance

General Motors Spring Hill Manufacturing strives for excellence in sustainable environmental performance. This commitment to environmental excellence is demonstrated continuously within the facility and throughout their community. Numerous partnerships with onsite suppliers, local leadership, the State of Tennessee, volunteers, and the many employees of GM have given various sustainability projects the desired positive impact important to the mission of General Motors.

Partnerships with key stakeholders are fundamental to successful environmental sustainability projects. In 2016 and 2017, projects included a partnership to provide a wetland observation deck at Henry Horton State Park and a tree planting in the wetland area. General Motors employees partnered to provide two rain gardens at Port Royal Park in Spring Hill, plant a Pollinator Garden at the Visitor/Welcome Center, plant trees for Arbor Day, volunteer for a highway cleanup for Keep America Beautiful day, assist with watershed education activities with the Maury County Boys & Girls Club, and collaborate with the Tennessee Department of Environment and Conservation to host a Sustainable Industry Workshop to Tennessee industry and manufacturing.

In 2017, a nature trail was constructed that allows employees and school groups to explore and experience a wildlife habitat area on the Spring Hill facility site. Features of this 1.16-mile trail include a creek, the outlet of an underground spring, and an observation deck overlooking a wetland, a pond, and several 100 plus years old trees.

Ongoing environmental programs at the General Motors site include maintaining their Certified Wildlife Habitat, updating the site's biological species inventory, and expanding both the plant's single stream recycling program and the plant's manufacturing recycling program. The Spring Hill plant also has an active energy conservation program that has been ongoing for several years. In 2017 and 2018, their focus concentrated on energy conservation during nonproduction periods and utilizing "power signature" and infrared heat measurements.

General Motors consistently demonstrates environmental leadership by participating in and supporting national, state, and local sustainability efforts. General Motors (formerly Saturn) was a member of the 1993 *Tennessee 2000 Initiative*, a collaborative effort among Tennessee industry to reduce TRI emissions. In 1998, *Tennessee 2000 Initiative* became the Pollution Prevention Roundtable with GM as a charter member. In 2001, General Motors was accepted into the new Tennessee Green Star Partnership and continues to be one of the Partnership's outstanding members.

General Motors was a founding member of the Suppliers Partnership for the Environment, an innovative partnership between automakers, their suppliers, and the U.S. Environmental Protection Agency. GM Spring Hill recently hosted one of the Partnership's quarterly meetings. The Suppliers Partnership works together to develop projects and activities focused on environmental sustainability issues impacting the auto supply chain.



## 2018 Governor's Environmental Stewardship Award Winner

### **Winner: Electric Power Board of Chattanooga**

Hamilton County

Category: Pursuit of Excellence

The Electric Power Board (EPB) in Chattanooga strives to increase the quality of life for the people they serve, and has been working to increase its environmental stewardship both inside and outside of its physical walls. In 2017, EPB began piloting an environmental stewardship dashboard that shows how much energy and water is being consumed by each of its buildings by month. Building waste is measured daily and reported weekly, with a monthly tally showing the percent headed for landfill versus the percent recycled. The company also tracks its own performance of recycling field metals, fiber equipment, and vegetation waste, as well as smart grid efficiency savings and employee transportation methods. Since 2016, EPB has reduced emissions by 3,340 tons through SmartGrid efficiencies, 1,797 tons by recycling field metals, and 2,869 tons of vegetation repurposing by grinding up wood chips and making it available to customers for free.

In partnership with CARTA and others, EPB supports a new network of publicly accessible electric vehicle charging infrastructure across the community with three electric vehicle chargers available to the public at no charge. In summer of 2017, EPB launched SolarShare, giving customers the opportunity to take part in solar generation without the hassle and upfront cost of installing solar panels. Month to Month panel rentals sell for just \$5 a month, allowing for customers at most income levels to participate, broadening the local socio-economic landscape for alternative generation ownership. To date, SolarShare has generated 1.49 MWh, the equivalent to 26,000 trees being planted or offsetting 2.5 million vehicle miles driven.

Through EPB's Home Energy Upgrade program, \$10 a square foot is invested in energy efficiency measures in low income customers' homes. In the past funding cycle, the program assisted over 70 households in saving energy. Residents saw an average reduction of energy use of 30%, and 34.5 tons of CO<sub>2</sub> was avoided. 83% of the residents saw significant health benefits through increased energy efficiency.

Additionally, the SmartBuild Certification Program offers builders added incentives for constructing homes that are both energy efficient and technologically fiber-ready for the future. To date, 376 homes have earned the SmartBuild designation, setting a higher standard for residential, environmentally friendly, energy efficient building in Chattanooga.

EPB is also providing quality of life opportunities for its own employees. EPB partnered with former Governor's Environmental Stewardship winner, and local business GreenTrips to offer a "commuter challenge" to employees. In 2017, employees logged 58,000 miles, or 6,577 trips with 35,650 tons of emissions saved. EPB is also piloting a commercial compost program. They have stopped the use of Styrofoam and transitioned employees to compostable alternatives,

These programs, demonstrate EPB's ongoing commitment to environmental excellence in building, cooperation, innovation, leadership, and educational outreach.



## 2018 Governor's Environmental Stewardship Award Winner

### **Winner: Sevier Solid Waste, Inc.**

Sevier County

Category: Pursuit of Excellence

Located in the foothills of the Great Smoky Mountains, Sevier County continues to experience a boom in tourism and economic growth that creates unique challenges. This growth increases the burden on public services for the disposal of waste. The burden is twofold-to dispose of the growing amount of waste and to protect the environment and beauty the tourist comes to see. Sevier County and its municipal governments recognized the need for a partner and created an integrated solid waste disposal plan that would protect the environment and the Great Smoky Mountain National Park.

Since its start in 1982, the goal of Sevier Solid Waste, Inc. (SSWI) has been to decrease the amount of material going to the landfill through recycling and composting. To handle the large amount of waste from the region's popular tourist destinations and to ensure the protection of the beauty of the area for generations to come, SSWI constructed the largest mixed municipal solid waste composting plant in the United States. Unlike other facilities, SSWI takes all incoming waste and processes it in its entirety through the compost facility. The 350 tons of municipal solid waste (MSW) a day, is taken to SSWI, and is mixed with bio-solids. This "mix" is pushed into rotary drum reactors (RDR) for three days. During this time, organics (including food waste and paper products) are broken down into compost. Of the 350 tons of MSW, 210 tons (60%), are mixed organics and will be composted through the process. After three days in the RDRs, the waste composts and is emptied. The composted material is then windrow-processed into a Grade A Compost, which is delivered throughout the southeast United States. The compost is used by farmers as a soil amendment and for erosion controls. The compost was also a vital component to revitalizing soils after the devastating 2016 wildfires in Sevier County.

In addition to accepting all incoming waste from Sevier County and its municipalities, SSWI takes waste from the entire Great Smoky Mountains National Park, including the portion in North Carolina. Sustainable companies and organizations from other counties also bring their waste to be composted to help reach their diversion goals. ConAgra Foods in Newport, TN, hauls all of the waste from their food processing plant including tomato paste, ketchup, and baked beans. JTEKT in Morristown hauls all of their cafeteria waste and paper waste to the composting facility. In addition, the University of Tennessee hauls their waste from special events such as the Destination Imagination; a zero waste event with over 16,000 participants. In the last year, SSWI received an additional 17,354 tons of organic material from Chattanooga, Tennessee, Gainesville, Georgia, and Albany, New York; all from companies with zero waste goals.

In the last three years, 223,302.09 tons of organics were diverted (99% capture rate) from the landfill. In addition to composting, SSWI offers additional recycling streams which include cardboard and drop off locations for single stream recycling. Through all these combined efforts, SSWI is able to divert 70% of their MSW from the landfill. SSWI has invested over \$2 million to create a back-end recycling system that pulls inorganics from the compost to sort and clean them to be recycled. This "never-been-done-before" system will enable Sevier County to capture the non-ferrous metals, aluminum, and plastics from their waste stream.



## 2018 Governor's Environmental Stewardship Award Winner

Despite SSWI being the leader across the State of Tennessee in diversion of materials from the landfill, SSWI is continually looking for ways to improve their operations. It is the goal of SSWI to become a zero waste facility. SSWI is opening a back-end recycling system to capture the commodities from the waste stream, which will be fully operational in 2018.



## 2018 Governor's Environmental Stewardship Award Winner

### **Winner: Bridgestone Americas Tire Operations, LLC - Warren Plant**

Warren County

Category: Pursuit of Excellence

Bridgestone Americas Warren County Plant, in Morrison, Tennessee, is a strong example of Bridgestone Americas going above and beyond to build a sustainable future for generations to come. Established in 1990, the Warren County Plant employs more than 1,000 people. These employees keep Bridgestone's mission alive and well through a variety of conservation initiatives.

Over the years, the Warren County Plant has partnered with a number of local organizations and entities including: Warren County Schools, Bridgestone Warren Plant employees, the Boy Scouts of America Middle Tennessee Council, University of Tennessee Chattanooga, Tennessee Department of Agriculture, Tennessee Wildlife Resources Agency, National Wild Turkey Foundation, and the Wildlife Habitat Council.

One of the biggest impacts of the Bridgestone Warren Plant has been its investment in the Bridgestone Environmental Education Classroom & Habitat (BEECH), one of five environmental education programs at Bridgestone. This program incorporates interdisciplinary studies in the hands-on classroom, environmental education on the 680-acre native landscape for students in grades pre-K through fifth, and focuses on inspiring the next generation's interest in the environment. Since 2008, 19,539 students have visited the BEECH and there have been 58,454.50 hours of actual learning. The program started with Warren County Schools and has since expanded to reach children from surrounding counties including Grundy, Van Buren, and White, and even engages homeschooled students.

In 2003, the Warren County Plant established the American Chestnut Project, an on-site American Chestnut nursery to assist in producing blight-resistant American chestnut trees. For the past 15 years, the University of Tennessee at Knoxville has provided 600 test samplings to be planted and observed for chestnut blight resistance.

Bridgestone has also pursued opportunities to nurture local animal and bird populations. To date, 70 bluebird boxes have been established in the prairie areas of the wildlife habitat at the Bridgestone property to establish breeding habitats for native Tennessee songbirds. Plant volunteers monitor bluebird boxes for songbird nesting activity during the breeding season.

The Bridgestone Warren facility maintains a total of 900 acres of wildlife habitat certified by the Wildlife Habitat Council; of which 50 are classified as prairie. The facility adopts land management practices designed to promote native prairie plant species such as mowing and burning, planting milkweeds as well as encouraging native pollinators to visit and inhabit. Volunteers from the plant, nurture several hives of domesticated honeybees that help propagate the prairie wildflowers while making honey. During a visit from Austin Peay State University, students identified a previously unknown population of a state-endangered plant species, *Polygala nana* or Candyroot, that was thought to have disappeared from Tennessee 25 years ago. The Bridgestone property is now the only place in the State for this rare prairie wildflower.

As responsible stewards of the environment, Bridgestone focuses on reusing and recycling wherever possible. In the Warren County Plant, great strides were made in reducing energy use in their operations.



## 2018 Governor's Environmental Stewardship Award Winner

From 2015-2016, 3,400 light fixtures were replaced with energy-efficient LED installations, improving energy efficiency at the plant by 35%. The plant also provides eight air stations throughout Warren County for the public to use for free. The plant recently installed special energy-efficient components into the mixers that make their tire rubber compounds. This new equipment gives the Warren Plant an annual electrical savings of over 2 million kWh, reducing Scope 2 greenhouse gases by over 1,700 tons of CO<sub>2</sub>, and helping the company get one step closer to the global goal of a 50% reduction of CO<sub>2</sub> emissions by 2050.

Bridgestone Americas Warren Plant consistently demonstrates environmental leadership by participating in and supporting national, state, and local sustainability efforts. In 1998, the *Tennessee 2000 Initiative*, a collaborative effort among Tennessee industry to reduce TRI emissions, became the Pollution Prevention Roundtable. Bridgestone was a charter member. In 2001, the Bridgestone Americas Warren Plant was accepted into the new Tennessee Green Star Partnership and continues to be one of the Partnership's outstanding members.



## 2018 Governor's Environmental Stewardship Award Winner

### **Winner: Memphis Light, Gas and Water**

Shelby County

Category: Pursuit of Excellence

After winning the Governor's Award in 2015, Memphis Light, Gas, and Water (MLGW), has taken its commitment to environmental stewardship to an entirely new level. In addition to facilitating the development of a Natural Gas Fueling Infrastructure to reduce diesel emissions in the City of Memphis and on Tennessee highways, MLGW made the impressive decision to go 100% renewable through its use of renewable natural gas (RNG) in all of its fleet vehicles.

It wasn't enough to be a champion of the cleanest burning fossil fuel in existence. Memphis Light, Gas, and Water wanted to offer the most sustainable fuel available and they found it in renewable natural gas, often referred to as RNG. Renewable natural gas is gas that is derived from biogenic methane that is naturally produced from the decomposition of organic waste. This biogenic methane can be captured and processed to the point where it has the identical characteristics as natural gas. This is often referred to as a high-btu waste-to-energy project.

In 2015, MLGW began the search for a renewable gas supplier for its Compressed Natural Gas (CNG) and Liquid Natural Gas (LNG) vehicle fuel production. In November 2015, MLGW entered into a contract with Atmos Energy, now Centerpoint Energy, to purchase RNG. Atmos had gas supplies that originated at landfills. They sold their gas supplies to MLGW who could then convert to renewable LNG and renewable CNG—all at no additional cost to the customer.

From that point forward, all the fuel consumed in MLGW's own fleet of more than 100 CNG vehicles as well as all of the CNG sold to the public at MLGW's two public CNG stations has been, and will continue to be, only 100% renewable natural gas. Memphis Light, Gas, and Water operates the first and only public CNG station and LNG production facility in Memphis.

Over the course of the first two years of this effort, MLGW has produced an amazing 357,459 GGE (gasoline gas equivalent) of renewable CNG and an astounding 7.35 million gallons of renewable LNG. In 2016 MLGW consumed for its own use, or sold at its public CNG stations, 105,397 GGE of renewable CNG. In 2017 that number more than doubled to 247,537 GGE. Since the inception of this project, this effort has contributed to 1665 short tons of greenhouse gas emissions prevented, as well as reductions of 28,357 pounds of NOx, 3,823 pounds of VOCs, particulate matter, and other tailpipe air pollutants.

In 2016, UPS received 3.43 million gallons of renewable LNG and in 2017 that number increased to 3.92 million gallons. MLGW's investment in providing this renewable LNG is equivalent to almost 20,000 short tons of greenhouse gas emissions prevented and every \$1 million in LNG sales is equivalent to adding 1,600 new residential customers. These sales in turn allow Memphis Light, Gas, and Water to keep natural gas rates low for all customers, while providing a cleaner fueling option to area businesses.



## 2018 Governor's Environmental Stewardship Award Winner

### **Winner: Dr. Larry W. Moore**

Shelby County

Category: Lifetime Achievement – Professional

Larry Moore received his B.S. in Civil Engineering from the University of South Alabama in 1973 and his M.S. and Ph.D. in Environmental Engineering from Mississippi State University in 1974 and 1983, respectively. He worked with the Mississippi Bureau of Pollution Control from 1974 to 1978, writing NPDES permits for industries. During the past 35 years, Dr. Moore has taught both undergraduate and graduate environmental engineering courses at the University of Memphis. In his teaching career, he has instructed 1000 plus civil engineering students and helped prepare them to transition to the real world of civil engineering.

To say that Larry has a passion for municipal and industrial wastewater treatment is an understatement. Throughout his career, he has helped (through the UT Center for Industrial Services (UTCIS)) solve industrial wastewater problems at over 200 Tennessee industries. Dr. Moore conducted site visits to each of these industries collecting as much data as possible to help define the scope of that particular industry's problems. He then prepared a comprehensive report that described the problems in detail. In addition, he developed two to four alternative solutions for the industry. Each of these solutions typically incorporated pollution prevention measures coupled with end-of-pipe wastewater treatment systems or treatment process changes that would allow the industry to solve its problems. On many of these UTCIS projects, Dr. Moore prepared an economic evaluation of the alternatives to ensure the proposed solutions were cost-effective.

He has been involved in the design of several municipal wastewater treatment plants in both Tennessee and Mississippi. Dr. Moore has provided operational guidance and troubleshooting expertise to the Moccasin Bend Wastewater Treatment Plant (WWTP) in Chattanooga for the last 15 years. This facility is a pure oxygen activated sludge process that treats as much as 200 mgd of municipal wastewater.

Dr. Moore planned and conducted numerous applied research projects for the Tennessee Department of Environment and Conservation (TDEC). In 2004, he conducted an evaluation of water quality in the Loosahatchie River via an extensive field data collection effort. Dr. Moore used the field data to perform water quality modeling of the river to evaluate the impact of wastewater discharges from eight rapidly growing municipalities northeast of Memphis and used this information to develop waste load allocations for these cities. TDEC used the waste load allocations to develop NPDES effluent limits for each of the municipal dischargers.

Dr. Moore has presented numerous papers at symposiums, conferences, and seminars on water quality, and wastewater treatment. In addition, he prepared several papers on the operation of biological wastewater treatment plants and has been published nationally. Dr. Moore served on the Dry Cleaner Environmental Response Board from 1996 to 2008 and continues to serve on the Water and Wastewater Operator Certification Board (2005-present). He volunteers his time on several occasions each year to teach wastewater operator training at the Fleming Training Center, mostly for activated sludge processes, especially related to biological nutrient removal. Dr. Moore also recently led training related to the use of his Bio-Tiger Model at the Fleming Training Center.





## 2018 Governor's Environmental Stewardship Award Winner

Dr. Moore has been intimately involved in the Voluntary Pretreatment Certification Program, which is conducted under the guidance of the Kentucky-Tennessee Water Environment Association (KTWEA). He was one of the founding members of this KTWEA committee in 2001. He planned the training program and helped develop the two extensive training manuals used in this effort. Dr. Moore is one of the key trainers each time the one-week courses are held. He usually provides training related to activated sludge processes and industrial pretreatment processes. This program has trained approximately 700 pretreatment coordinators, engineers, and scientists since 2001.

In the last seven years, Dr. Moore has dedicated his professional applied research effort to reducing energy consumption and improving effluent quality at municipal wastewater treatment plants. Dr. Moore's work has been conducted in collaboration with TDEC, the U.S. Environmental Protection Agency (Region 4), and the U.S. Department of Energy, who have become staunch advocates of his approach. He has worked tirelessly to identify opportunities for energy conservation and nutrient discharge reduction utilizing "low to no cost" strategies. Dr. Moore analyzed plant performance and energy data to develop a comprehensive report for each WWTP, which provided realistic alternatives for energy conservation.

Dr. Moore's assessment work is based on his own robust, bio-kinetic (mathematical) model that he has successfully used to evaluate the biological treatment process (especially activated sludge processes) to achieve energy efficiency as well as process efficiency. In 2017 Dr. Moore enhanced his model to make it "user friendly" for engineers, wastewater operators, and regulatory personnel. The Bio-Tiger Model not only simulates the activated sludge process, but it also allows the user to analyze the aeration system for the activated sludge process. Many wastewater treatment facilities operate at relatively high dissolved oxygen concentrations in their biological reactors, which significantly reduce the efficiency of aeration equipment and minimize nitrogen removal. Implementing his model has resulted in energy savings by reducing aeration equipment run-time and creating anoxic conditions in biological reactors to promote significant denitrification. The Bio-Tiger Model is currently being used by numerous engineers and wastewater operators throughout the U.S. to improve process performance, reduce energy consumption, improve aeration equipment performance, to enhance activated sludge design, and to optimize the activated sludge process.

Based on data prepared by Region 4 EPA, Dr. Moore helped these communities achieve verified energy savings totaling more than 10,000,000 kWh/year. The verified equivalent carbon dioxide reduction of the energy savings was 8,000 tons/year because of reduced need for electric power generation. The verified reduction of nitrogen discharged to U.S. streams in the southeast was 800,000 pounds/year. The verified, combined operational savings for the wastewater treatment plants that have implemented Dr. Moore's recommendations are over one million dollars per year.

Dr. Moore has had a tremendous impact on the performance and energy use at municipal wastewater treatment plants in the southeastern U.S. The resulting reductions in carbon dioxide pollution have been significant, and the impact on the water environment substantial, as the reduction of nitrogen being discharged to southeastern U.S. streams has improved water quality in many watersheds. Moreover, the energy savings have substantially reduced the operating costs at numerous treatment plants, thus contributing to these cities' efforts to operate cost effectively and to contribute to environmental sustainability. In addition, Dr. Moore has taught and mentored hundreds of civil engineering students, many of whom currently are making significant contributions to the field of environmental engineering in Tennessee.



## 2018 Governor's Environmental Stewardship Award Winner

### **Winner: Mary Priestley**

Franklin County

Category: Lifetime Achievement – Volunteer

Mary Priestley has spent the majority of her life in the mountains of South Cumberland, falling in love with the nature around her, and taking an active role in conservation. Mary grew up in Chattanooga, but moved to Sewanee at 18, when her father took a seminary job. Mary started college at the University of Florida, but transferred to Sewanee her sophomore year, which was the first year that women were accepted. She received her Bachelors in Forestry from Sewanee and later a Masters in Biology from Middle Tennessee State University. Mary then returned back to Sewanee to receive a Master of Fine Arts in Creative Writing.

Mary taught science for various schools and grades for six to eight years at a time. Currently, she is an Associate Curator of the Sewanee Herbarium at the University of the South, where she has been for more than 20 years. Mary also serves her community and South Cumberland State Park through her active role as a director of the Friends of South Cumberland State Park and Chair of the Education and Outreach Committee.

Mary has been an important asset in improving and conserving South Cumberland State Park. She recently worked to obtain funds to expand the Park's resources for outdoor education for children. What resulted was the transformation of the Visitor's Center into a new hands-on museum. Additionally, her work on the newly transformed Meadow Trail, has not only become a "Story Book Trail" for the public, but also has grown to include a Nature Play Area, a garden, bees, and a free library at the trailhead. Mary also helps other organizations such as Camp Discovery to continue the important mission to get children outside and experience nature.

Mary has written several publications, all self-published. A few include, "Dad's Railroad", which is a children's book about the Mountain Goat, and a series of essays titled, "Fiery Gizzard, Voices from the Wilderness". Currently, she is working on a botany book for all ages titled, "Ask the White Oak".

Protection of the South Cumberland area and the park are very important to her. She volunteers most of her time helping to improve the park and bringing people in to enjoy its beauty and learn about the nature in and around South Cumberland State Park. Mary leads wildflower hikes and is one of the volunteer instructors for the Tennessee Naturalist Program that takes place every June.

Mary provides great leadership to the committees she presides over, communicating direction and vision to help South Cumberland State Park move forward, as well as help her organization move forward. Mary's support quietly coaxes those she works with to see the bigger picture, not just their own needs. That bigger picture always involves the good of the park, the good of the department, the good of her organization, and the betterment of the community. Mary's approach and the resulting volunteering outcomes consistently exhibit a long-range vision for the benefit of South Cumberland State Park and the surrounding area.

Mary Priestley has taken her professional career as a teacher and married it with her lifetime passion for conservation, botany, and the mountains of South Cumberland. Mary is a powerful force for stewardship and engagement. She has tirelessly given her time, energy, and artistic talent to support a