

2021 Governor's Environmental Stewardship Award Winners

Winner: City of Kingsport

County: Sullivan

Category: Natural Resources

In 2020 the City of Kingsport completed the remaining mile of trail necessary to finish the Kingsport Greenbelt Master Plan, a project that began in the 1980s. The Kingsport Greenbelt is a 10-plus mile linear park that connects residential neighborhoods, traditional parks, downtown, commercial districts, historical landmarks, schools, and activity centers across the Kingsport community. It provides transportation links, waterway access, environmental enhancement, ecosystem protection, and recreational opportunities. The project has leveraged \$7 million in investments from multiple partners, community donations, 35 state and federal grants, 104 property acquisitions, city funding, and over 82,000 community volunteer hours.

A special feature of this unique park is a pathway for pedestrians and bicycles. It includes over 2,000 feet of elevated boardwalks, built with an innovative product called Perennial Wood, patented, and donated by Eastman Chemical, and valued at more than \$80,000. These boardwalks are carefully designed to minimize any environmental impact as they go through wetlands, traverse hillsides, cross streams, and provide ADA accessibility.

This park has trail and sidewalk connections to various community agencies that provide support for the underserved and underrepresented population of Kingsport, which includes multiple non-profits, nine churches, and two Title I elementary schools. Additionally, a Safe Routes to School project added lights and an emergency call box on a trail connector to one of the schools.

The greenbelt provides an important riparian buffer for two waterways, Reedy Creek and north and south forks of the Holston River, protecting over 55 acres of wetland property that adjoin the greenbelt. The city added 260 trees, more than 100 shrubs, 150 herbs, 30,000 flower bulbs, and a pollinator garden along the trail system. The signage throughout the trails includes wayfinding kiosks with display panels depicting area bird species, special bird identification signs, signs explaining the important role wetlands play in our environment, rules signs that ask the public to help protect wildflowers/vegetation and wildlife, and information signage explaining the importance of watersheds. A "Fitness Zone" located beside the greenbelt provides a unique space to exercise in an open area and provides versatile outdoor fitness equipment to strengthen all muscle groups and can be used for free. Lastly, pedestrian and bicycle counters on the greenbelt indicate an average of 70,000 users.

2021 Governor's Environmental Stewardship Award Winners

Winner: Clayton Savannah

County: Hardin

Category: Materials Management

While several manufacturing plants and recycling facilities suspended operations due to COVID-19 disruptions in 2020, Clayton Savannah, which produces manufactured homes, remained open and operating throughout the year. Shifts in Clayton Savannah's supply chain and access to recycling markets provided the company with an incentive to focus on process improvements to reduce waste and explore other opportunities for diverting waste from the landfill. The primary focus of Clayton Savannah's efforts became material reuse, taking material scraps from one area of the production and working systematically through the operation to see how material could be used elsewhere in the building process. As a result, in 2020 over 1.5 million pounds of materials were able to be reused in the production process. Ninety percent of the reuse material was notoriously difficult to recycle construction waste — wood and sheetrock.

These reuse activities allowed Clayton to substantially cut down its waste per home built. In 2015 the facility created an average of two tons of waste per home built, half of the waste compared to site-built homes. By the end of 2020, Clayton was able to reduce that by 71 percent to 0.58 tons of waste per home built. Not only were they reducing waste, they became more efficient — both of which resulted in substantial cost savings — allowing them to produce more homes while reducing their waste and overall carbon footprint.

Accomplishments over the last year include diverting 6,726,000 pounds of waste from the landfill; 1,576,960 pounds in material reuse; 19 percent decrease in natural gas usage; 8 percent decrease in electricity use; 2 percent decrease in water consumption; 18 percent decrease in hazardous waste; 3 percent reduction in general refuse; 36 percent reduction in volatile organic compounds and fugitive dust; a total reduction in greenhouse gas emissions of 3,383 metric ton carbon dioxide equivalent or equal to removing 736 passenger vehicles per year; and a total reduction in energy use of 7,367 million BTU's.

Clayton Savannah became a Tennessee Green Star Partner in 2019 and has increased recycling by 300 percent and diversion by 117 percent since implementation of its recycling and environmental programs, representing a total of 6,180 tons of material recycled and 13,495 tons diverted.

2021 Governor's Environmental Stewardship Award Winners

Winner: Coffee County Soil Conservation District

County: Coffee

Category: Agriculture and Forestry

The Coffee County Soil Conservation District (CCSCD) has been instrumental in transitioning from long-term no-till row crop production systems into higher functioning agro-ecological systems across Coffee County. CCSCD began to realize that even though the county's soils were not eroding at a high rate and fields appeared healthy from the surface, after 40 years of continuous no-till practices, agricultural fields in Coffee County were performing at a low ecosystem function level, compared to expected soil performance. Implementation of diverse cover crop mixes following growing of corn and soybeans allowed CCSCD to address low infiltration, sheet and rill erosion, low soil biology, low above and below ground biological diversity, low organic nutrient cycling, high plant pest pressure, low drought tolerance, and invasive weeds.

CCSCD's successes in assisting farmers with transitioning from long-term no-till row crop production systems to higher functioning agro-ecological systems required education and outreach, technical assistance, partnership agreements, and financial help to assist the producers in adopting these systems. CCSCD partnered with the Natural Resources Conservation Service, Tennessee Department of Agriculture, Quail Forever, Soil Health Institute, University of Tennessee Agricultural Extension Agency, and local agricultural retailers to educate farmers about agro-ecological systems via annual Soil Health Field Days, which drew participation from farmers representing local, national, and international communities, regenerative producers, academia, and retailers. CCSCD has also made over \$10 million in federal and state funds available to producers in Coffee County to support efforts to rejuvenate cropland, grazing land, and forestry land. Through the support of CCSCD, over 400 producers representing over 70,000 acres of land in Coffee County have adopted regenerative practices.

Additionally, in cooperation with the CCSCD, 18 producers, representing 58 fields and covering 2,200 acres, have participated in the Coffee County Soil Health Study. The data collected from these fields in this ongoing study is used to monitor trends in soil health improvements associated with adoption of more progressive, regenerative practices the progressiveness of these systems. Based on the results of the soil health study, all areas of poor ecosystem performance and soil health have seen vast improvements.

2021 Governor's Environmental Stewardship Award Winners

Winner: Cumberland River Compact

County: Davidson

Category: Water Quality

In 2020, the Cumberland River Compact (CRC) completed an ambitious three-year expansion of its Clean Streams Initiative (CSI). The full three-year initiative involved 235 stream cleanups in 17 Tennessee counties, 2,766 volunteers, and the removal of 134,674 pounds of trash from 64 different Tennessee waterways. The weight of all trash removed was roughly equivalent to 4,900 tires, 6 million plastic water bottles, or 305 million cigarette butts.

Despite the pandemic, the final year of the expansion involved 66 cleanups in 33 different Tennessee waterways. These cleanups adhered closely to local, state, and federal public health guidelines and occurred in every one of Tennessee's 13 major watersheds of the Cumberland River Basin, in 16 Tennessee counties, and in the tornado impacted neighborhoods of North Nashville, East Nashville, and Cookeville.

With the Clean Streams Initiative, the Cumberland River Compact developed a model for expanding the organization's work from one community to the next across the state. CRC met city and county staff from parks and stormwater departments, the Tennessee Wildlife Resources Agency, resource managers from the U.S. Army Corps of Engineers, state and federal park contacts, and more. With new contacts engaged, CRC organized stream cleanups in the areas that most needed it. In 2020 alone, CRC worked with 13 city or county governments, five state agencies, and three federal entities, 110 Tennessee organizations participated directly in cleanups (77 are now adopters), and over a dozen more provided other forms of support. Altogether, 2,766 volunteers cleaned Tennessee streams, contributing to 7,399 volunteer hours and \$201,252 in volunteer labor.

The variety of litter in Tennessee's rivers is exhaustive, but plastic litter is reaching truly astonishing proportions. A recent study of the Tennessee River uncovered 18,000 microplastic particles per meter. In 2020, after the tornado, CRC went to impacted areas of Nashville and Cookeville, removing insulation, roofing shingles and other potentially harmful materials before those materials could wash into waterways.

CRC targeted areas experiencing burden and prioritized work in six counties that were classified as economically distressed or at-risk counties. CRC worked with residents to clean streams in communities with thriving immigrant populations, such as Mill Creek, which flows through Antioch, and to clean streams in historically black neighborhoods, such as Drake Branch in North Nashville. Not only that, CSI provided a solid foundation for new partnerships in new places, which has opened doors to major bank restoration projects, rain garden plantings, paddle access builds, educational initiatives and more.

2021 Governor's Environmental Stewardship Award Winners

Winner: Nokian Tyres Dayton

County: Rhea

Category: Sustainable Performance

Nokian Tyres located in Dayton, recently completed construction on its new manufacturing facility. With construction of the Dayton plant, Nokian Tyres saw an opportunity to build a campus in the heart of Southeast Tennessee that prioritized sustainability and helped protect Rhea County's dramatic landscape. The project is one of the most eco-friendly tire production factories in the world – an energy-efficient campus partially powered by solar energy, brightened by greenspaces and engineered with sustainability in mind at every step of the process.

When Nokian Tyres broke ground on its Dayton facility in 2017, it set out to turn the facility into a showpiece for environmental responsibility. In 2020, the production building earned LEED v4 Silver certification – the first tire production facility in the world to achieve such a milestone. A three-megawatt-hour solar panel installation onsite, which fully powers the factory's adjacent administration building, helped the facility achieve LEED v4 Silver certification. Additionally, the facility features a smart building automation system designed to save energy, is comprised of ecofriendly building materials, contains efficient water and waste management systems, and includes electric vehicle charging stations located in the parking lot, the same parking area covered by those solar panels.

Accomplishments include energy savings through renewable energy production, 12 percent of the building's energy cost is covered by solar power, as well as indoor water use reduction and reduction of heat islands on the property. The factory's administration building also earned LEED v4 Gold certification. Other successes include Nokian Tyres diverting 99 percent of production waste from landfills, either through reuse, recycling, incineration, or transportation to waste-to-energy facilities. Before raw materials arrive at the factory, Nokian Tyres aims to source them sustainably. In 2019, the company joined the Global Platform for Sustainable Natural Rubber (GPSNR), a platform that strives to increase supply and uptake of sustainable natural rubber in the global marketplace. They became the first tiremaker to have its emissions reduction targets approved by the Science Based Targets Initiative and have lowered emissions from production by 33 percent.

The Dayton factory has a three-pronged program that supports education in Rhea County and the surrounding area; funds scholarships for high-achieving local students who share Nokian Tyres' passion for sustainability; and serves as an advocate for sustainability in Southeast Tennessee and beyond. The company is preparing to award a one-time \$2,500 scholarship to a high-achieving Rhea County High School student, which is intended to fuel college study tied to sustainability and STEM subjects. The plant also donated to the Tennessee Aquarium Conservation Institute in 2020 to fund research studying the impacts of micropollutants in freshwater habitats, help the institute understand how changes to

2021 Governor's Environmental Stewardship Award Winners

environment impact rivers and streams, and help restore endangered animals to their native habitats.

2021 Governor's Environmental Stewardship Award Winners

Winner: Tennessee Tech University

County: Putnam

Category: Building Green

Tennessee Tech University is a public higher education institution in Cookeville, occupying a total of 267 acres. For several years, construction has been a big part of the campus' landscape, as efforts have been underway to build a state-of-the-art science building, recreational facility, and other spaces. All renovated space and new construction on campus are designed and constructed according to the conditions of the Tennessee High Performance Building Requirements (TN HPBr). The design team factored in special considerations when selecting building locations, with the goal of reducing the environmental impact of both building locations, including preventing any erosional impacts during construction. Both facilities are conveniently accessible by public transit systems, including Tech's Bikeshare program. As part of construction, native plantings were utilized to eliminate the need for irrigation and access to open space was prioritized. The Laboratory Science Commons Building occupying 150,000-square-feet of space is the largest academic building on Tech's campus. In addition to being the university's largest academic building, the new laboratory sciences building is also Tech's first LEED v4 Silver certified facility.

Upgrades at the Marc L. Burnett Student Recreation & Fitness Center included improvements to the pool filtration system. The school chose a regenerative media filtration system, which reduces chemicals for water treatment, saves energy, reduces wastewater produced by the backwash process, reduces the need for potable water to fill the pool, reduces the purchase and handling of chemicals to treat additional pool fill water, and reduces the quantity of water that must be processed as wastewater by the local sewer facilities. It is estimated to save over \$10,000 in annual operating costs and more than 700,000 gallons of water annually.

Other major renovations were completed at each of Tech's 14 residence halls and the entire Tech Village apartment complex in accordance with Tennessee HPBr. In addition, Bruner Hall, which is a 58,000 square feet academic building, underwent a full building renovation, with HVAC upgrades to include outdoor air units with automated damper controls; new energy efficient windows; LED lighting; and water bottle filling stations.

Tech is a member of the Association of the Advancement of Sustainability in Higher Education, which hosts the Sustainability Tracking & Rating System (STARS) program. Through STARS, the university is evaluated on sustainability in academics, engagement, operations, planning and administration, innovation and leadership, and has been certified as a Silver STARS University.

2021 Governor's Environmental Stewardship Award Winners

Winner: Trevecca Nazarene University

County: Davidson

Category: Environmental Education and Outreach

The Trevecca University Urban Farm's TreeCycle program is rooted in environmental justice and advocacy, community engagement and action, and a holistic perspective on healthy living. TreeCycle is a youth employment program that works to structurally remove barriers to health equity by empowering and employing youth to plant an edible tree canopy and vegetable gardens in their neighborhood. The youth employees, known as TreeCyclers, are mobilized on a fleet of second-hand bicycles, promoting active transportation and a healthy living. TreeCycle focuses on the low-income South Nashville neighborhoods of Napier, Sudekum, and Chestnut Hill.

The Trevecca Urban Farm was founded in 2011 by Jason Adkins to serve as a teaching tool which believes that growing food in the city is an elegant solution to the challenges of feeding a community and healing the ecosystem. The intention of the farm is to show that the overwhelming problem of food inequity in South Nashville is neither inevitable nor impossible to overcome. The farm equips local young people and students with practical skills of farming and advocacy. The unique combination of bikes, trees, and youth is a solution that has the potential to positively impact the environment and economy statewide.

Using bikes and urban farming, TreeCycle puts youth leadership to work on many challenges at once: hunger, diet-related health, beautification, clean air, flood prevention, nature connection, community advocacy, and transportation that is healthy for our bodies and for the environment. TreeCycle is planting an urban orchard and gardens that beautify the community and provide free access to fresh fruit and vegetables. This edible canopy will prevent flooding, cool homes, sequester carbon, reduce noise, settle air pollution, improve mental health, and feed pollinators. Partnerships with Harvest Hands Community Development Center, Oasis Bike Shop, and the Cumberland River Compact have helped with developing a community engagement plan, bike repairs and creation of a tool that calculates the environmental impact of each tree planted.

In addition to a farm team, the program hired three AmeriCorps VISTAs to support and implement the daily objectives. TreeCycle employs 11 youth who have completed 360 hours of green collar job training. TreeCycle addresses systemic economic disparities and the need for community-based work through employment instead of volunteerism. TreeCycle has become a green collar job training and environmental education program for youth that works toward healthy futures, not just by planting trees and riding bikes, but also by developing job skills and teaching community advocacy.

2021 Governor's Environmental Stewardship Award Winners

Winner: Vanderbilt University

County: Bedford, Davidson, and Franklin

Category: Energy Renewable Resources

In January 2020 Vanderbilt University began its efforts to power its campus through investments in off-site and large-scale renewable energy. Partnerships with the Tennessee Valley Authority (TVA), Nashville Electric Service (NES), and Metro Nashville to procure renewable energy through TVA's new Green Invest program are helping to mitigate the campus' greenhouse gas emissions. Through these partnerships, Vanderbilt is the first higher education customer to partner with a local power company in the seven-state TVA region to tackle climate change by working toward its goal of powering its campus entirely through renewable energy and committing to carbon neutrality by 2050. Through the Green Invest program, Vanderbilt will procure renewable energy credits (RECs) to offset 100 percent of its indirect greenhouse gas emissions, equaling 39,661 of MTCO₂E.

Vanderbilt's initial project located in Bell Buckle will mitigate approximately 70 percent of the university's indirect greenhouse gas emissions by fall 2022. The second project, which was announced in November 2020 between Vanderbilt and Metro Nashville, will supply enough renewable energy to offset the remaining 30 percent of the university's annual indirect greenhouse gas emissions from purchased electricity by fall 2023 and will be located in Tullahoma. The second project's 100 megawatts of solar power will produce the clean-electricity equivalent of carbon emissions from powering over 11,000 homes or removing more than 14,000 cars from the road.

The investment made by Vanderbilt and its partners represents a combined 125 megawatts of solar energy and will result in \$3 million to \$6.8 million dollars of health benefits across Tennessee from reduced air pollution associated with existing energy sources.

Pursuit of Excellence Winners

2021 Governor's Environmental Stewardship Award Winners

Winner: Knoxville Utilities Board

County: Knox

Category: Pursuit of Excellence

Knoxville Utilities Board (KUB) has maintained its commitment to sustainability since receiving the 2018 Governor's Environmental Stewardship Award (GESA) in Environmental Education and Outreach. Since its 2018 GESA, KUB has expanded existing programs and partnerships and introduced several new initiatives. These efforts have included a \$1 million annual contribution to weatherization programs for the 3,000 customers on the waiting list, the development of a low-income Toilet Replacement Program and virtual workshops, and a first-of-its-kind Green Invest purchase and announcement of a \$1.5 million investment to build Knoxville's first Community Solar Project. KUB also worked to enhance customer sustainability offerings including its Electric Vehicle (EV) Rebates, Green Switch Match renewable energy program, and Time of Use Rates.

Through the various low-income weatherization programs, nearly 1,800 homes have been served and \$21 million contributed since 2015. Weatherization upgrades improve energy efficiency and enhance customer comfort and health by improving indoor air quality and reducing the stress low-income families face over their utility bill. KUB conducted a study of Round It Up and Home Uplift participants from 2016 to 2019. The study found that homes that underwent Round It Up weatherization improvements saw an average of 15 percent reduced monthly energy consumption. This translated to an average of \$15-20 in customer savings on monthly utility bills.

KUB implemented a toilet replacement program providing \$500,000 in funding each year toward low-cost water and energy saving items, such as LED light bulbs, faucet aerators, and low-flow shower heads. The program is expected to provide utility bill savings of up to \$300 annually per household.

In 2020, KUB entered a first-of-its-kind Green Invest agreement with TVA and announced a \$1.6 million investment which will be split among four solar projects located in Tennessee and Mississippi and will be Knoxville's first community solar project. KUB committed to purchasing 502 megawatts of new-to-the-grid solar power on behalf of its customers. The projects will generate solar energy equal to 20 percent of KUB's annual electric load — the equivalent of powering approximately 83,000 average homes. As a result, KUB's electric power will be 68 percent carbon free.

KUB implemented the "Green Switch Match" pilot program which allows participants to match their monthly electricity consumption with an equivalent amount of renewable energy production for one cent per kilowatt hour used. Since the program launch in October 2020, more than 100 customers have signed up to participate, matching nearly 150,000 kWh of renewable energy per month.

2021 Governor's Environmental Stewardship Award Winners

KUB's Level 2 EV Charger Rebate Program offers up to \$400 to customers for purchase of a Level 2 EV charger. Since implementation, the program has aided more than 100 customers with the purchase of their Level 2 EV chargers, amounting to approximately \$50,000 in contributions from KUB.

Finally, KUB introduced a new Time of Use Rate Pilot Program. Time of Use rates are offered to incentivize load shift by sharing the financial benefits with customers. Time of Use rates provide money saving opportunities to customers who are able to complete high energy-use activities, such as doing laundry, taking showers, adjusting thermostats, and charging EVs, during off-peak hours.

2021 Governor's Environmental Stewardship Award Winners

Winner: Metro Nashville Department of General Services

County: Davidson

Category: Pursuit of Excellence

Since winning a Governor's Environmental Stewardship award for the Building Green category in 2017, Metro Nashville's Department of General Services' Division of Sustainability has continued to pursue and achieve excellence in three critical areas: green building, renewable energy, and electric vehicle infrastructure.

After constructing the Southeast's first LEED Platinum fire station in 2017, General Services built five more facilities representing a wide range of building types and uses and retrofitted more than 11 city facilities to exceed energy efficiency standards and achieved LEED v4 certifications. For 20 of its high-performance buildings, Metro avoided energy costs of more than \$1,775,000 compared to non-LEED buildings from 2017-2019, this equates to 60,376,534 kBtu. These buildings saved more than 30,461,318 gallons of water during the same period. During the pandemic, Metro used advanced energy management procedures, and adjusted HVAC, lighting, and schedules to achieve more than \$271,000 in energy savings across 11 facilities.

Nashville is now a nationally recognized leader in renewable energy for the city's planned 100MW ground mounted solar array under TVA's Green Invest program. In addition, Metro's 12 rooftop solar installations with a total of 2,062 panels have generated 1,808,549 kWh of clean electricity since 2017, enough to power more than 233 homes for a year. This is the clean air equivalent of taking over 1.5 million vehicle miles off our roads.

While building infrastructure accounts for nearly half of the Nashville's community-wide greenhouse gas emissions (46 percent), the transportation sector is responsible for roughly the rest (49 percent). To help mitigate increasing emissions from this sector, Metro has committed to growing electric vehicle adoption and has installed 72 electric vehicle charging ports in 25 locations. Since 2017, these free charging stations have saved 267,312 pounds of CO₂e emissions from entering the atmosphere. Currently, 247 Metro vehicles are either hybrid, electric, liquid propane, or compressed natural gas vehicles; an additional 1,794 vehicles are flex fuel. The division's 13 electric vehicles have averted over 35 metric tons of carbon dioxide equivalent from the air since 2017.

In the pursuit of excellence Metro has also conducted two citywide greenhouse gas emissions inventories, hosted the Southeast Sustainability Directors Network annual conference, created outreach programs that have meaningfully engaged more than 3,000 residents, and shepherded a historic investment to build 100MW of solar to offset city energy use.

2021 Governor's Environmental Stewardship Award Winners

Winner: Tennsco

County: Dickson

Category: Pursuit of Excellence

Tennsco, which manufactures storage and filing products, has maintained its commitment to sustainability since receiving the 2019 Governor's Environmental Stewardship award in Energy and Renewable Resources. Tennsco's most recent energy reduction project consisted of a 120KW lithium battery storage system with a 549KW supporting solar array which was completed in 2020. The project focused on peak demand reduction; this system is a major milestone for similar industrial facilities as Tennsco is the first to utilize such technology in this way.

In cooperation with Dickson Electric, Inman Solar, Energy Tool Base & Chint Power Systems, Tennsco has completed the installation of two 60KW lithium battery and inverter systems capable of reducing Tennsco's power demands as they arise in real time. Known as "peak shaving," this type of system can constantly monitor the facility's power demand and react to spikes in demand by discharging stored solar power from integrated lithium batteries. Though constant monitoring is a key function of this system, Energy Tool Base has incorporated a type of artificial intelligence (AI) into the controlling software that, over time, will learn the power demand habits of Tennsco. This AI will form its own prediction of the next 24-hour power demand every 15 minutes that ensures the facility's combination of live solar power and stored solar power can effectively reduce the power demand as needed. Simply put, the longer the system is in operation, the more efficient it becomes.

The batteries and supporting solar array have displaced an estimated 240 metric tons of carbon dioxide emissions from fossil-fired generation. With a minimum lithium service life of 10 years this equates to an estimated 2,500 metric ton reduction in CO₂e during the life of the system. Tennsco has contracted the installation of three more similar systems across the company that include an additional 700 kw solar/battery expansion for demand reduction.