2023 Governor's Environmental Stewardship Award Winners

Winner: Asurion Gulch Hub
County: Davidson County
Category: Building Green

The Asurion Gulch Hub is a new LEED-Gold certified headquarters for Asurion, a global technology company with over 280 million customers worldwide. The global headquarters, developed by Highwoods Properties, is designed to foster productivity, collaboration, and innovation to attract and retain talent while enhancing and engaging the neighborhood and broader community.

Asurion Headquarters, offers two new, Class-A office towers (eight and nine stories) of approximately 1,300,000 total square feet, which includes approximately 500,000 square feet for retail/office space and approximately 700,000 square feet for 1,920 parking spaces below grade. The development includes an elevated outdoor public plaza/tenant courtyard and drop-off of approximately 90,000 square feet, and two elevated, steel-framed connector walkways at the fourth and sixth floors.

On the first floor, the Town Hall space accommodates dining, meeting, or working. At the southwest corner of the ground floor, the Pavilion brings the outdoors in with floor-to-ceiling glass, and two 20-foot-wide sections of operable window wall. The Asurion Gulch Hub supports over 2,000 employees in spaces that range from large communal gathering spaces and food halls to micro-markets, coffee bars, board and meeting rooms, game room, repair lounge, secure command center, and a fitness center. The space was prioritized and designed by key stakeholders and leaders with sustainability goals in mind, and the wellbeing and engagement of all employees. The building achieved LEED Gold certification in October 2022, achieving Gold level certification under the LEEDv4 BD+C: Core & Shell rating system and the LEEDv4 ID+C: Commercial Interiors rating system. LEED points were earned for a variety of sustainability measures which include a 31 percent reduction in potable water use, a 71 percent reduction in outdoor water use, a 19 percent energy cost savings, utilization of over 50 building products that have disclosed third-party verified life-cycle assessments, and 30 percent of the building materials were of recycled content. Building construction achieved an approximately 68.88 percent diversion from the landfill with construction and demolition waste.

Biophilic design strategies and access to over 80,000-square-feet of outdoor green space help improve the wellness of employees and guests in and outside the building. For the first time since rail lines were laid in the 19th-century, Asurion Gulch Hub unified the most exciting neighborhoods within Nashville's urban core which have historically been divided by overpasses, railroads, and industrial areas with greenway connections.

The building enhances the pedestrian experience on both 11th Avenue and Church Street with a monumental stair mediating the 42-foot elevation difference between the two streets. In addition to the building itself, on Thursday, August 4, 2022, Metro Parks and Greenways of Nashville celebrated the ribbon cutting of the redesigned Gulch Greenway opening of a 1,400 feet new linear park to the public adjacent to Asurion Gulch Hub. This 1/4-mile segment of the broader Gulch Greenway integrated with Asurion's Gulch Hub exemplifies a successful public-private partnership between Metro and Highwoods Properties who funded and constructed the realignment and extension of the greenway trail.

Winner: Bailey
County: Davidson County
Category: Sustainable Performance

Bailey, located in Nashville since 1949, provides end-to-end material handling solutions. It is proud to be family-owned and operated, certified woman-owned, and the first TRUE Zero Waste forklift dealership in the nation. Bailey has 12 locations with 300+ employees throughout Tennessee, north Georgia, and southeastern Kentucky, that offer forklifts and other equipment from leading brands. Eight of the nine facilities in Tennessee are powered by solar and reclaim waste oil and use it to heat its shops. Bailey recycles tires, plastic film, food, and organic waste and donates scrap metal and parts to local artists. The 25,000-sq.-ft. facility/headquarters in Nashville became TRUE Zero Waste Platinum Certified and became the first Zero Waste certified forklift company in the United States. For the last two years its landfill diversion rate has been 99.4 percent-99.5 percent.

Bailey's approach is holistic, creating solutions for the entire waste system. Its recycling programs are designed to compost, reuse, or recycle everything to include but not limited to tires, paper, metal, and oil. While leadership is fully committed to its efforts, it also encourages innovation from employees to exercise their creativity. For over a decade, Bailey has used special heaters that burn used oil to heat its mechanic shops. An employee of Bailey developed an oil bottle draining system that captures and collects oil residue in oil bottles. Fully draining the bottles allows Bailey to recycle them, and the remaining oil is used to heat its mechanic shops. All employees sign an environmental sustainability commitment as part of onboarding while leadership also looks for candidates with previous experience in sustainability practices, so that there are always fresh ideas and a culture of continuous improvement in environmental sustainability.

Additionally, Bailey celebrates its commitment to sustainability by incorporating it into employee annual review and bonus structures. Bailey understands that sustainability is a team effort and encourages its employees to work together to achieve sustainability goals. In addition to encouraging sustainability within the business and among employees, Bailey takes an active role in promoting environmental stewardship in the community by being lead sponsor of various organizations and events. Bailey has an annual Equipment Giving Program, when deserving non-profits each year apply to receive equipment, such as electric pallet jacks. Since its inception in 2019, the Bailey Equipment Giving Program has donated equipment to L.P. Pencil Box, Second Harvest Food Bank, Thistle Farms, Book'em, among others. While Nashville is its first and only TRUE Zero Waste certified site, Bailey is actively transferring these same operations to their its other locations.

Winner: City of Chattanooga
County: Hamilton County
Category: Energy and Renewable Resources

The City of Chattanooga is one of around 40 U.S. cities that participated in the U.S. Department of Energy's Better Building Challenge. The city was named a Better Buildings Goal Achiever in 2019 and has since achieved more than a 35 percent reduction (saving 18.16 GWh) in energy use intensity from a 2015 baseline across 2 million square feet of building space, meeting the goal six years ahead of schedule. The City's Moccasin Bend Environmental Campus (MBEC), a Better Buildings Showcase Project, underwent several structural improvements beginning in 2018 to ensure long-term effective wastewater treatment for its growing population and increased resilience in times of extreme events.

The Moccasin Bend Wastewater Treatment Facility, which is the foundational facility on the Moccasin Bend Environmental Campus (MBEC), was originally built in 1961 and serves a six-county regional territory including over 400,000 residents. The wastewater treatment facility supports approximately 1,263 miles of sewer lines, seven large custom-built pumping stations, eight custom-built storm stations, 53 underground, wet well mounted, submersible pumping stations, approximately 171 residential/grinder stations, and eight combined sewer overflows. It remains the largest energy consumer (55 percent) of the city's owned and operated facilities, treating 140 million gallons per day (MGD). MBEC produces approximately 70,000 wet tons of biosolids per year, which are treated with lime and land applied as a Class B biosolid in surrounding agricultural areas.

MBEC underwent several structural improvements to include a 10-acre solar PV installation, Equalizer Blower upgrades, LED lighting retrofit, variable frequency drive control updates, and water efficiency improvements with a 24 percent reduction of water consumption and an annual savings of $27,462 in energy costs. The water efficiency improvements included potable and plant water systems to reduce overall water use by substituting lower-grade water for certain non-potable water process uses and finding and eliminating leaks in the water system. These upgrades will reduce power use for supplying the spray water for the gravity thickeners by reducing their operating pressure and downsizing the plant water pumps.

In nine years, MBEC reduced its annual electricity use by over 30 percent. This equals a reduction in energy usage from 59.32 Gigawatt hours (GWh) in 2012 to 41.16 GWh in 2021, saving 18.16 GWh total. In five years, MBEC's water consumption decreased by 24 percent (2016 to 2021). These reductions are the direct results of the MBEC's energy efficiency improvements. These improvements culminated in energy cost savings for the campus totaling $1.4 million per year. The City of Chattanooga has prioritized energy and water efficiency and found innovative ways to achieve both, reaching over 35 percent energy intensity savings across its 2-million-square-foot portfolio of buildings.

Winner: Tyson Foods – Obion County Complex
County: Obion County
Category: Water Quality

Tyson Foods' Obion County Complex operates its own wastewater treatment plant that fully treats all process water from the poultry processing plant and the hatchery. In 2018, the processing plant and hatchery began an expansion project that doubled their processing capabilities. The expansion added an additional four fryer lines totaling seven to the production plant which includes smoking, cooking, canning, curing, refining, and/or rendering of the poultry.

Since the expansion, the processing plant harvests, on average, 1.3 million birds per week weighing an average of 7.6 pounds per bird, and the hatchery hatches approximately 1.2 million chicks per week. These increases in production also caused an increase in water usage, the processing plant now uses approximately 10.5 million gallons of water a week and the hatchery generate approximately 225,000 gallons of water per week that is sent to the wastewater treatment plant. Because of the increase in water usage, the wastewater treatment plant also went through an expansion to better treat the process water.

Tyson prides themselves on going above and beyond in environmental stewardship. Tyson has set forth several standards surrounding water quality, the main standard being the Wastewater Discharge Standard which includes several standard operating procedures that ensures the treatment process is treating the water as effectively and efficiently as possible.

Through plant upgrades including adding a new Dissolved Air Floatation (DAF) system in addition to the existing system to run in parallel together, Tyson achieved an overall 15 percent reduction in water usage. Together the DAF systems serve as pretreatment to the wastewater treatment process. This process creates a blanket of sludge on top of the DAF systems which are then skimmed off and stored into a tank where a third-party vendor will pick up the sludge and land apply it on pasture or crop land as a beneficial rich fertilizer consisting of organics and nutrients. Land applying the sludge created by the DAF helps Tyson to maintain its Zero Waste to Landfill certificate by diverting that sludge from the landfill. In 2022, approximately 4 million gallons of waste activated sludge was land applied.

Its two existing anaerobic lagoons had new variable frequency drives installed to increase the pumping capacity to handle the increase in wastewater flow along with a few other upgrades to the two-stage biological nitrogen removal system. This system helped achieve total nitrogen removal by biological nitrification and denitrification to reduce final effluent total nitrogen concentrations of 37 percent below its allowed permit limits. Once the final effluent has completed the last step in the treatment process, part of the water, approximately 2.5 million gallons a week, is sent back into the water reuse system.

This water is then pumped back into the processing plant to be used in non-contact processes such as offal screen cleaning, vacuum pump cooling, and non-production washdown. The full treatment wastewater facility treats, disinfects, and discharges approximately 11.9 million gallons of water a week into the Obion River which is an 11 percent reduction in total discharge to the river through beneficial reuse and upgrades which substantially reduces the overall impact to the Obion River.

In 2022, the Obion County location reused 117,720,850 gallons of fully treated wastewater. The treated wastewater that is not sent back through the reuse system is then discharged into the North Fork of the Obion River.

Winner: Lick Skillet Farm
County: Jefferson County
Category: Agriculture and Forestry

The Lick Skillet Farm in Jefferson County has been in operation since 1919. Early farming practices at Lick Skillet were harsh and destructive, and the farm was badly eroded right down to clay and rocks, but it was all George Miller could afford. Neighbors warned that if he tried to feed his family from that land, his hungry children would be forced to "lick the skillet." Today, Lick Skillet Farm is a Tennessee Century Farm operating on more than 1,000 acres of highly productive farmland and provides food to hundreds of Tennessee families. That transformation has been driven by four generations of farmers committed to environmental stewardship.

The first generation focused on healing the scarred and washed-out fields. With advice from experts, they worked to help reverse the rampant erosion by placing large tracts of land in the "soil bank" to recover, managed woodlands, and planted thousands of new trees. By the 21st Century, they were instructed to create riparian buffers to protect waterways and maintain healthy wildlife ecosystems along streams. They laid out miles of cross fencing and set up a score of water tanks throughout the farm to allow rotational grazing across several dozen paddocks. In 2016, the farm added 250 acres of adjoining land that had been badly abused through outdated "industrial" agriculture practices. Intensive use of tillage combined with non-stop applications of herbicides and pesticides had devastated soil life and severely impaired air and water quality.

As Lick Skillet Farm approached its centennial year, history was repeating itself. The farm undertook a major project to implement the complex bundle of environmental stewardship practices comprising regenerative agriculture. Regenerative agriculture uses a systems approach to protect air and water quality while restoring environmental health to the capacity and capabilities existing prior to 200 years of extractive agriculture.

Regenerative agriculture has allowed Lick Skillet Farm to greatly reduce its carbon footprint, and in 2022, become what is believed to be the first U.S. farm to receive carbon credits generated by planting trees as part of an integrated livestock-agroforestry plan. In 2012, Lick Skillet Farm carried 200 animal units (one animal unit equals 1,000 pounds of grazing livestock) supplemented with 750 tons of hay. A decade later, in 2022, its improved pastures are carrying 330 animal units and with only 255 tons of supplemental hay. In rough terms, by 2022, the farm's regenerative practices have increased carrying capacity by nearly two-thirds, while reducing supplemental feed by two-thirds.

Additional programs implemented at Lick Skillet Farm over the last five years are the use of intensive multi-species grazing; prescribed burning to establish native grasses and pollinators; integrated pest management using birds instead of pesticides; achievement of 100 percent grass finished cattle and sheep and 100 percent no-corn-no-soy pastured pigs and poultry; a focus on air and water quality and soil health which required adopting a 100 percent no-till policy; extensive use of annuals for cover crops to sequester more carbon; installation of two commercial-scale solar energy installations and geo-thermal energy; replacement of synthetic fertilize inputs with a commercial-scale composting project; installation of the community's only solar-powered electric vehicle charging station free to the public; and education to the local K-6 elementary school which visits the farm at least once a year.

Beyond all these successes, the farm is aiding in the rejuvenation of the Tennessee Grazing Lands Coalition, a producer network for growing the regenerative agriculture movement for improved economic and environmental sustainability for Tennessee farmland.

Winner: Memphis Tire Recyclers, LLC
County: Shelby County
Category: Materials Management

Memphis Tire Recyclers LLC (MTR) is the City of Memphis' only minority-owned standard recycling facility with a focus on collecting and recycling scrap tires and rubber waste, and producing tire-derived aggregate, tire-derived fuel, and crumb rubber.

MTR is the brainchild of Corteney Mack and David Burgess both native Memphians, which was the main reason they developed this idea. They both saw the damage and blight illegally dumped tires contributed to the Memphis area, with no entities to assist with remediation. The company has been in business for roughly a year and has had many accomplishments. They have onboarded 14 new customers; successfully cleaned up11 illegal tire dump sites; and developed the capability to pave sidewalks, playgrounds, and trails with recycled crumb rubber.

Scrap tires pose a serious threat and impact if not properly remediated. They are the perfect breeding ground for vector-borne illnesses like West Nile Virus. The open center of a tire collects rainwater as it sits, creating small, still water pools, allowing for mosquitos to lay their eggs. Most vehicle tires contain a high fossil fuel content. They are highly flammable, and once they start burning, it isn't easy to put them out. Even a small tire pile that catches on fire can burn for months before running out of fuel.

MTR has identified ways in which they can educate citizens on how to responsibly recycle tires. It believes that a large part of the reason that tire blight is such an immense problem is simply because people are not educated about the laws and how tires can impact the environment. MTR has the following four-prong plan and approach on how to educate the community about the importance of eliminating illegal tire dumps. It disseminates information on the company website and company social media pages; does interviews with local news and media outlets; host company tours and workshops that break down recycling equipment; and is in the beginning stages of having a company podcast.

MTR has successfully collected and/or cleaned up 32,348 scrap tires and shredded 12,562 tires down to 350 tons of various aggregates. This means almost 33,000 tires have been diverted from landfill space and placed into a circular ecosystem that promotes rubber as an alternative fuel source, and green manufacturing by aiding tire manufacturers to utilize carbon black to process new tires.

Winner: OxyChem
County: Humphreys County
Category: Clean Air

OxyChem in New Johnsonville is a wholly owned subsidiary of international energy company Occidental. It is among the top three producers in the United States for the chlor-alkali, chlorinated organic, and is a global leader in the production of polyvinyl chloride. OxyChem manufactures products that form the building blocks for everyday household goods and drive crucial industrial processes. The New Johnsonville facility was the first greenfield project which does not have any existing infrastructure or legacy systems. The facility uses a modern membrane brine electrolysis process to produce chlorine, caustic soda, and hydrogen.

The use of an on-site hydrogen fired boiler was identified as an opportunity to reduce externally generated steam consumption from carbon-based fuels by 415 million pounds. The targeted reduction in CO2 emissions from natural gas to clean burning hydrogen was estimated to be 35 million pounds on an annual basis. Hydrogen is a gas that is produced as a byproduct of the electrolysis process of manufacturing chlorine and caustic. Due to hydrogen's thermodynamic properties, it can also be used as an alternative clean energy source for producing steam, which is vital to plant operations. The New Johnsonville facility initiated a project to capture hydrogen vented to the atmosphere to generate steam, thereby reducing externally generated steam using carbon-based fuels. This was completed by designing, constructing, and operating a hydrogen fed, clean burning boiler to produce steam for the site resulting mitigated CO2 emissions and improved hydrogen usage efficiency.

To recover hydrogen vented to the atmosphere, OxyChem invested in a multi-million-dollar project to install a high-pressure hydrogen vent stack, liquid ring hydrogen compressor, and hydrogen boiler and associated controls. The boiler design capacity was targeted to meet full production demand of 62,000 lbs/hr at 160 pounds per square inch gauge (psig) steam. The domino of improvement opportunities followed by vibration issues identified at the compressor which required improved foundation support and bearings replacement. The site persisted through reliability improvement initiatives on the hydrogen compressor through summer of 2020 by identifying the need and designing with the vendor a water-cooled bearing seal. This improved reliability of the hydrogen compressor which was required to compress the hydrogen to the required 15 psig header pressure to feed the boiler.

Since completion of the hydrogen boiler project and header control improvements, the site has averaged 88 percent self-produced steam consumption. This has mitigated a potential 28.1 million pounds of CO2 since April of 2022. Excluding freezing weather events experienced in December 2022, this would provide an annualized reduction of 53,553,584 pounds of mitigated CO2 emissions. The hydrogen recovery efficiency annualized improvement is 545,234 MMBTU which is equivalent to 37,725 tons of coal fuel.

OxyChem continually evaluates ways that it can integrate sustainability throughout the company, and this change is part of their continuous effort to improve raw material utilization (increasing its hydrogen recovery by 43.4 MMBTU), decreasing wastewater impacts (decreasing effluent chlorides by 13,281 lbs.), and decreasing its overall carbon footprint (reduction of delivered raw material by tanker truck mitigating ~109.2 tons CO2 per month.)

Winner: T.O. Fuller State Park – Tires to Trails
County: Shelby County
Category: Natural Resources

T.O. Fuller State Park in Memphis created one of the first full circle sustainability projects of its kind. How could 25,000 waste tires, a closed Tennessee State Park golf course, and a historically, economically distressed community come together? The Tires to Trails project has done just that by creating a community resource that simply means more than the sum of its parts.

After more than half a century of operation, the golf course at T.O. Fuller State Park was closed in 2011. Since then, the golf greens have transformed into a thriving native grassland and prairie space for wildlife with a state-of-the-art interpretive center that focuses on green energy and sustainable building practices. These two things are incredible additions to the community and greatly increase the park's opportunity to educate youth on the outdoors and sustainability. However, one thing remained in disrepair – the old crumbling golf-cart paths. In such a beautiful and inspiring area of the park, it was always a frustration to see the cart paths, now used mainly by school groups during field trips or by community members for walking, literally crumbling beneath users' feet and at times they would abruptly end as nature had swallowed up entire portions of the pavement.

In mid-2018 a group of Tennessee State Park staff met with local government and community members to discuss how to revitalize the trail system. A suggestion to use a new type of surfacing called flexible porous pavement, that had been experimented with at other parks around the state, was made. Rather than a cement like concrete, or petroleum asphalt, this surface utilizes recycled tire rubber. This new surface type had many advantages over concrete and asphalt, such as being made of recycled material, being very porous to water, and being more resilient when used in a natural environment. The park was very creative in finding the material used to make this "new" surface.

During each drive into and out of the park visitors noticed illegally dumped tires along roadways, in abandoned lots, in ditches, etc. And this wasn't just a few tires, this was hundreds, maybe even thousands along one route in and out of the park, all within a couple of miles. How could their recycled pavement project help the community at large? The Tires to Trails project was envisioned and was a full-circle project that would help alleviate a major community issue. This project leveraged three grant funding sources and required extensive cooperation between several governmental agencies and buy-in from local community groups and non-profits. By utilizing volunteers and paid local contractors, the project was able to clean up over 24,000 illegally dumped tires over the span of 18 months, and the Tires to Trails Project renovated and constructed a 2.9-mile hard surface walking and biking trail.

The tires were collected, transported, and were recycled into 1/4-inch and 3/8-inch crumb that is needed for flexible porous pavement with all wire and most of the fabric removed. This trail system largely utilized existing cart paths at the old golf course, though many new connections have been made to make a more sensible and modern "loop" trail design. This trail system is not only completely hard surfaced and therefore more accessible but has specific sections that are completely ADA compliant.

This project had an impact on the park, and on the surrounding neighborhoods, ensuring that the project was doing what it could to fight inequity where possible and stands as a blueprint for other parks in Tennessee and throughout the nation as to how to create a truly full-circle project.

Winner: University of Tennessee – Institute of Agriculture
County: Knox County
Category: Environmental Education and Outreach

The Department of Biosystems Engineering and Soil Science at the University of Tennessee Institute of Agriculture has created a solution for poultry litter in the state. There are over 400 million broilers processed each year in Tennessee at six different processing plants. However, broiler production generates a large amount of poultry litter, for instance a 40,000-bird broiler house with six flocks per year will produce approximately 300 tons of poultry litter. In total, Tennessee's broiler production generates over 400,000 tons of poultry litter per year. Poultry litter can be used as fertilizer on farmland in the state as it contains nitrogen, phosphorus, and potassium along with several other micronutrients. One ton of poultry litter can contain 66 pounds of nitrogen, 50 pounds of phosphorus, and 40 pounds of potassium.

Application of the poultry litter back on to farm fields for plant production recycles the nutrients and is intuitively the right thing to do. However, poultry litter must be applied in a controlled fashion or else an excess application will be viewed as disposal and could result in degradation of local and distant water bodies, leading to hypoxia and eutrophication. Additionally, excessive poultry litter application to agricultural production fields could result in prosecution for illegally discharging poultry litter into the environment. The application of poultry litter on agricultural production fields can be a good thing, so the question became how much and when should it be applied?

Faculty members Dr. Shawn Hawkins and Forbes Walker created the publication Litter Land Application Management (W 796) for successful poultry litter management in the state. This publication provides producers with a field-specific nutrient management system for agricultural utilization of poultry litter nutrients, as well as the required recordkeeping. The publication also contains a worksheet that enables producers to determine the amount of poultry litter that will maximize its value, while minimizing the cost of commercial fertilizer. Additionally, the worksheet enables the calculation of the correct amount of litter to apply on a field such that a producer is well below the limit that could cause a risk of illegal discharge. All this is done without affecting economic returns on crops.

Prior to making the calculations on the worksheet, producers need to assemble information from field soil tests and poultry litter nutrient analysis; gather information on field crop history and yield data over the past five years; determine field litter application records for the prior two years; and produce field images or maps that show the field area in acres. A detailed description of this information is provided in the publication. Once these values are in hand and crop yield goals are established, producers can enter the values step-by-step into the worksheet. The values that are calculated are explained in detail within the publication.

The Publication W 796 is straightforward and provides guidance to the Tennessee poultry producers and other producers who are utilizing poultry litter for fertilizer to use the litter as a resource and in a safe manner. This publication has been downloaded over 35 times. This publication is proving to be invaluable to the poultry industry and its producers. The future competitiveness of U.S. agricultural production, particularly for the livestock and poultry sector, depends on improving profitability and animal welfare while reducing the environmental impact of production. Publication W 796 is a path toward improving profitability, while reducing the environmental impact of poultry production.

Winner: Tennessee Department of Agriculture, Division of Forestry
County: Cumberland County
Category: Pursuit of Excellence

The Tennessee Department of Agriculture Division of Forestry created a Strike Team over 20 years ago to solve the problem of the Hemlock Woolly adelgid (HWA), a non-native invasive insect causing extensive mortality and decline in the Eastern Hemlock and Carolina Hemlock across Tennessee. Since winning the Governor's Environmental Stewardship award in Agriculture and Forestry in 2020, the HWA Strike Team chemically treated over 150 Hemlock Conservation Areas (HCAs). Some of these HCAs are on their second and third round of treatments. This means that over the last decade, the HWA Strike Team has treated more than 85,000 hemlocks over 6,000 acres across state-owned forests and forests that are protected by conservation easements. The team has facilitated the release of tens of thousands of predator beetles reared at the Lindsay Young Beneficial Insects Laboratory at University of Tennessee.

Hemlock forests can be found in 39 counties throughout Tennessee totaling approximately 150,000 acres both on public and private lands. This distribution varies from old growth dominant hemlock forests in the Great Smoky Mountains National Park to less than 5 percent composition in scattered riparian areas of Middle Tennessee. From east to west, the topography and site characteristics differ dramatically as do management approaches. Hemlock forests provide a unique set of environmental services to the ecosystem. No tree species has been identified to fill its void if HWA is successful in eradicating the hemlock tree. Hemlocks predominantly grow in riparian areas, next to streams, and provide a myriad of services: streambank stabilization, water temperature regulation, both aquatic and terrestrial habitat, and aesthetics.

The HWA Strike Team in collaboration with the Tennessee Hemlock Conservation Partnership has hosted dozens of landowner workshops across the entire hemlock region that has resulted in thousands of private citizens learning what HWA is, why treating for HWA is important, and how they can be a part of a bigger conservation story. Over the past 10 years, the THCP grew to include universities, other non-government organizations and most importantly, private citizens. The private landowner treatment kits contain various equipment needed for any homeowner to successfully treat hemlocks and are loaned out, free of charge, from the Division of Forestry. Additionally, the HWA Strike Team has developed a series of YouTube videos to demonstrate HWA treatment methods to the public.

The HWA Strike Team also participates in research and leans on volunteers to test solutions that other organizations have developed. For example, Dr. Elizabeth McCarty has developed an optimized dosage of imidacloprid that is lethal to HWA while maximizing cost savings of chemical and workforce effort. It fine-tuned the dosage and developed an application procedure that can be implemented by the private landowner. The HWA Strike Team is also collaborating with the Lindsay Young Beneficiary Insects Laboratory on installing field insectaries which is an innovative approach to HWA biological control.

Winner: green|spaces
County: Hamilton County
Category: Pursuit of Excellence

Since 2007, green|spaces, a 501(c)3 sustainability resource center, has advanced the sustainability of living, working, and building in Southeast Tennessee with a wide range of programs serving a diversity of constituencies. Three of the most impactful programs include Build It Green, Empower/Empodérate, and the Chattanooga Green Prix.

Build It Green (BIG) is a three-month to one-year workforce development program created to break the cycle of poverty through construction skills training and social-emotional learning. Construction skills include OHSA-10 certification, blower door testing, and home repairs. Typically, home repairs are provided for homeowners who are senior and/or on fixed incomes. These residents are not able to afford needed upgrades and repairs. BIG completes the work at no cost to the residents. To date, BIG has graduated 60 members which is 22 more individuals since winning the 2020 Governor's Environmental Stewardship Award in the Environmental Education and Outreach category. Through partnerships with the local nonprofit organization Build Me a World, the program bolsters an 80 percent graduation rate with a 90 percent placement job rate which is 10 percent better than in 2020.

An additional program is their Empower/Empodérate which is for low-income households, which spend an average of 15 percent-20 percent of their income on energy bills. This program includes eight rural counties surrounding Hamilton County. This disproportionately affects economically disadvantaged and older adult populations. The Empower/Empodérate program's impetus is to reduce this burden through free energy savings workshops where over 1,000 participants have attended. The workshops are also offered to the Latino community with the addition of Spanish workshops. EPB found an average savings of 5 percent for attendees who implemented the workshop strategies.

The longest tenured program at green|spaces is the Chattanooga Green Prix, launched in 2017 to give students opportunities to prepare for the fast-growing industry of electric vehicles. Teams throughout the region work together for four to six months to build, maintain, and race an electric car on a full-scale track. They host two races each school year and in 2022 40 teams participated in the races with over 700 attendees for each two-day event. Over 40 percent of the registered schools involved are Title 1 schools.

Lastly, green|spaces provides local students the ability to expand their knowledge of the field through their student memberships at green|spaces and the green|leader program. The green|leader Certificate is an online, self-paced course designed to help working professionals, students, and passionate citizens acquire a significant understanding of the fundamental challenges and business opportunities arising from a rapidly changing environment and economic landscape.

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