



Reducing Recidivism through Arboriculture Workforce Development

ACKNOWLEDGMENTS

Author's note: *This report is dedicated to those incarcerated and experiencing nature deficiency; to those who have kept the hope of nature alive while incarcerated; to those who have participated in the programs featured in this report - your curiosity and commitment to learning and gratitude keep these programs alive.*

Dedicated to all the pioneers and practitioners- thank you for paving the way, and for your support and dedication to growing beautiful programs.

Lastly, this is dedicated to systemic change.

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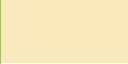
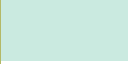

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Cover photo: Participants in Pennsylvania's Correctional Conservation Collaborative are trained in climbing skills for arboriculture jobs. Courtesy photo by PA Department of Corrections.

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Dear partner,

Now, more than ever, it is time for the U.S. Forest Service Urban & Community Forestry Program (UCF) to place ourselves front and center to advance equity and justice in historically underserved communities. In alignment with our UCF 10-year Urban Forestry Action Plan and Executive Order 13985, “Advancing Racial Equity and Support for Underserved Communities Through the Federal Government,” specifically, the Justice 40 initiative, I am challenging myself, my colleagues, and state partners to innovatively invest in communities experiencing low tree canopy cover and environmental injustice.

We have ample evidence demonstrating how social inequity and economic oppression correlate with inadequate tree canopy cover in underserved communities. Why not create programs that disrupt these patterns, employing residents facing barriers to employment to plant and care for trees where they are most needed? The urban forestry job training programs highlighted throughout this report are aimed at serving currently and formerly incarcerated individuals. Beyond the programs’ efforts to break the cycle of incarceration and reduce recidivism, they offer unique opportunities for employers to access a trained, more diverse workforce, expanding career opportunities in the urban forestry sector for underrepresented populations.

While these programs are a great start, truly inclusive workforce development depends on our industry partners stepping up to hire formerly incarcerated individuals. It will take our grassroots groups to connect trainees and new hires with necessary resources to lift them out of harmful cycles of social and economic inequity. Our field has so much to offer—positions that pay family-sustaining wages, work that increases the environmental resilience of communities. Growing the urban forestry workforce in an intentionally inclusive way is absolutely possible; let’s harness this opportunity to put UCF to work to create lasting change for the better.

Beatra Wilson

Assistant Director for Urban & Community Forestry
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Introduction

This report highlights a handful of urban forestry focused programs and efforts across the U.S. that provide education, vocational training, experiential learning opportunities, and career pathways to individuals currently or previously incarcerated. The millions of people composing the “correctional population” are an underserved and overlooked asset who, with education, training, and support, can build workforce capacity in urban forestry—a sector that continues to maintain a high demand for skilled laborers—and successfully reintegrate into society.

Urban forestry workforce development programs provide more than employable skills with viable career pathways but also involve tasks (e.g., planting and caring for trees) that impart intangibles like self-worth, autonomy, empowerment, a sense of purpose, and satisfaction of creating a lasting impact. Workforce development programs (pre- and post-release) seeking to serve justice-involved individuals are most successful when they take a holistic approach that provides cognitive behavioral therapy, social support services (also referred to as wrap-around services), and job placement and retention assistance in addition to education and skills training. Partnerships and collaborative programs can leverage each organization’s specialized expertise to provide each of the elements that produce successful outcomes. (Read the “Considerations for Program Design” section to learn more.)

A combination of these elements will significantly improve a justice-involved individual’s opportunity to build a successful career pathway and reduces their likelihood of returning to incarceration (also known as recidivism).

Terminology Note: In this report, urban forestry is used synonymously with arboriculture, and individuals previously incarcerated are also referred to as re-entrants or justice-involved

The Need:

Growing Trees, Careers, and the Economy

Trees are intimately linked to healthy, functioning ecological, social, and economic systems. They are an investment with a return far outweighing any associated costs (e.g., maintenance, treatment, or removal). Essential components of resilient and sustainable communities, trees provide a \$73 billion benefit to society in the form

of environmental services including sequestered carbon, improved air quality, and reduced stormwater runoff (Thompson and others 2021), that in turn improve public health and quality of life. In 2017, the total economic footprint of urban forestry across the U.S. was valued at \$64 billion; this includes \$25.1 billion in employee compensation spread over an estimated 501,600 jobs (Thompson and others 2021). Time spent among trees and in forests can reduce stress (Wolf and others 2020) and irritability and improve cognitive functioning (Shin and others 2011). States with infestations of emerald ash borer (a beetle that is decimating U.S. ash tree populations) experienced higher rates of human mortality from cardiovascular disease (Donovan and others 2013). Trees facilitate social cohesion—a measure of the degree to which residents feel a sense of connectedness, belonging, and trust within their community and toward fellow residents (Hartig and others 2014). Tree-lined downtown retail districts compared to those without trees see shoppers willing to travel more often and greater distances, and once there shoppers will spend more time and money shopping for products (Wolf 2005).

Trees provide numerous positive impacts; many have yet to be fully captured through research. To maximize their potential and realize their many benefits, trees require regular maintenance and care, such as structural pruning, preventive treatments, invasive species management, or supplemental watering. Foregoing appropriate maintenance and care jeopardizes tree health and survivability, and hinders the community's tree canopy goals as well as environmental, economic, and social benefits.

Urban and community forests across the U.S. are receiving insufficient care and maintenance, and one major reason is the “historic unprecedented labor shortage” within the urban forestry sector (Anderson 2021). In 2017, the U.S. Bureau of Labor Statistics (BLS) estimated the [Tree Trimmers and Pruners](#) occupation (also known as arborists) will grow over 8 percent by 2029 and an estimated 6,300 additional arborists will be needed by 2024 (Torpey 2017). Tree Trimmers and Pruners are a single BLS occupational profile among many within the larger urban forestry sector. The aforementioned job data and projected growth does not capture full-time or seasonal staff working on local- or state-level reforestation planting efforts or consultants mapping and conducting tree canopy assessments or individuals performing integrated plant health care or distributors of urban wood or university extension urban forestry educators, and so on. Therefore, the projected occupational growth and future workforce demands within the whole of urban forestry to not only

meet baseline need but also grow the urban forestry economy cannot be adequately extrapolated from one BLS occupational snapshot. In 2017, the BLS compiled a broader assessment, looking at occupations with the common theme of working outdoors in the woods and found about 60,300 projected job openings between 2014–2024 (Torpey 2017).

To attract talent into the sector, a broad recruitment strategy is key. The industry needs to increase awareness of arboriculture career pathways. This, along with the need for clearly defined entry requirements, standardized vocational programming, and reliable workforce pipelines (ISA 2018) were identified as workforce challenges during an [industry summit](#) held by the International Society of Arboriculture (ISA) in May 2018 to focus on workforce development.

According to the U.S. Department of Labor (DOL) Occupational Information Network (O*NET®), to enter the Tree Trimmer and Pruner occupation a candidate needs minimal experience and education. In fact, 94 percent of individuals working in this occupation have a high school diploma (or equivalent) or less ([O*NET](#) 2022). Therefore, the Tree Trimmer and Pruner occupation has relatively low barriers to entry, making it accessible to a broad range of individuals. Most entry-level positions in the Tree Trimmer and Pruner occupation are grounds maintenance workers. Employees who have higher ambitions, such as climbing arborist, need opportunities to advance their skills. Employers should assist their staff with planning a career path by helping them determine if and how to grow in the profession, and what developmental training is necessary to achieve that growth.

The Opportunity:

A Potential Workforce and Reducing Recidivism

At the end of 2019, the U.S. had an estimated 6.34 million persons under adult correctional system supervision (i.e., in prisons or jails, and on probation or parole) (Minton and others 2021). Of those, 2.3 million were considered incarcerated in state or Federal prisons or local jails. This is a substantial population, often relegated to the lowest rungs of the education and workforce ladder (Couloute 2018), just waiting until, ideally, their release date.

A majority—95 percent of these individuals—will return to their communities and the larger society at some point in their lives. This is equivalent to more than 700,000 individuals released per year or 1,600 per day. Yet, about 4 out of 9 (44 percent) re-entrants are rearrested

during the first year following release from prison, about two-thirds (68 percent) will be rearrested within 3 years of release, and three-quarters (75 percent) within 5 years (Alper and others 2018). These frequencies are referred to as recidivism rates. The definition of recidivism varies but for the purposes of this report, recidivism is the rearrest, reconviction, or return to prison or jail with or without a new sentence (NIJ, no date).

The costs—both economic and social—of incarceration and recidivism are high and far-reaching. The financial cost of imprisonment per individual, which includes supervision and security, services, food, vocational and educational programming, and so on, varies by state, ranging from \$14,780 in Alabama to a high of \$69,355 in New York (Mai and Subramanian 2017). Once released, cost of care shifts from correctional agencies onto the communities and families of releasees. Hence, post-release social support services are vital, not just for the re-entrant but also their families, because “while caring for parolees in the home may be a respite from having a loved one incarcerated...the state transfers the responsibility for the emotional and material care to women and communities.” (Massaro 2020) If more can be done for individuals while incarcerated to prepare them for re-entry and reintegration into society, those burdens can be lessened, and re-entrants can sooner become contributing members of society.

Findings show education and vocational programs within prisons and jails) are cost-effective means to achieve beneficial post-release outcomes. A 2013 RAND Corporation meta-analysis of correctional educational studies found the direct cost to educate an inmate was estimated at \$1,400 to \$1,744 and, furthermore, this investment in education reduced re-incarceration costs by \$8,700 to \$9,700 per inmate when compared to re-incarceration costs for individuals not receiving correctional education. This same study found that incarcerated individuals who participated in correctional education programs had 43 percent lower rates of recidivating and 13 percent higher rates of obtaining post-release employment compared to those not in education programs (Davis and others 2013).

The incarcerated population reports lower educational attainment than the general (non-imprisoned) population (Harlow 2003). Statistics show about 41 percent of incarcerated individuals had not completed high school or its equivalent (at time of incarceration) compared to 18 percent of the general population age 18 or older who had not finished the 12th grade (Harlow 2003). Educational attainment predicts a variety of individual outcomes, including but not limited to, employment, income, health, likelihood of receiving public assistance, and political participation.

Incarcerated individuals are disproportionately more likely to have held a low-skill, low-paying job, if employed at all, at the time of arrest (Harlow 2003). As of December 31, 2019, Pennsylvania’s Department of Correction (PADOC) reported 81.4 percent of the total State prison population of 45,875 as being “unskilled or possessed no skills.” (PADOC 2019) The PADOC, along with nearly 90 percent of U.S. correctional facilities (e.g., Federal and state prisons and local jails) offer some type of internally designed educational and/or vocational programming (Stephan and Karberg 2003) and many individuals take advantage of these opportunities while incarcerated (Harlow 2003). Participation in correctional education programs does not change the stigmatization experienced by the estimated 65 million U.S. adults (Natividad Rodriguez and Emsellem 2011) with criminal records that keeps them from being hired or forces them out of jobs due to mistreatment by colleagues. The impacts of stigma go beyond the individual, causing the family to suffer, and advancing the cycle of incarceration.

**“This perpetual labor market punishment creates a counterproductive system of release and poverty, hurting everyone involved: employers, the taxpayers, and certainly formerly incarcerated people looking to break the cycle.”
(Couloute and Kopf 2018)**

“Statistics in the criminal justice system reveal that offenders who leave with job skills and/or education and are given a modicum of after-care services are more likely to break the cycle of recidivism than inmates simply being released.” (Jiler 2006) Those working in the corrections space acknowledge that pre- and/or post-release programs that combine cognitive behavioral components with vocational resources, skill-building activities, and education reduce an individual’s chance of recidivating. Acquiring knowledge and building skills are powerful tools enabling the successful transition back to society while avoiding recidivism. The success of education and training stands in contrast to prisons and jails focusing on punishment and deterrence, which have not been proven to effectively prepare individuals for reentry and reintegration.

Recidivism rates should not be the sole measure of a workforce program’s success, since recidivism data may be skewed by inconsistencies in policing, sentencing, and supervision (prisonpolicy.org, no date). However, they have long been and continue to be the primary measure used to evaluate and communicate the effectiveness of correctional programs, services, and interventions. Lower recidivism rates have been found among participants of “green prison programs” compared to the corresponding state or general U.S. prison population (van der Linden 2015). In this

context, green prison programs involve dimensions of environmental, ecological, or nature-based elements in their programming and delivery, such as horticultural therapy or gardening, food production, forest, or tree nursery management. Prisons and jails are often bleak, concrete, and isolating by design. Increasing access to trees and plants through ecologically-based workforce development programs promotes relaxation and relief from harsh prison and jail environments. Gardening promotes a positive self-concept and helps support positive emotional and behavioral management—all critical life skills necessary to adapt and persevere in life (Twill and others 2011).

“For prisoners, many of whom have suffered frequent failures in the job place and the frustrations of being marginalized in society, horticulture is a process that allows them to control their environment through shared responsibilities in an unspoken contract between person and land. Accomplishment is its own reward, generating new goals and productive efforts in a person’s life. As skills develop and projects increase, individuals achieve a greater sense of empowerment, along with newfound pride in their role in the workplace.” (Jiler 2006)

Urban forestry workforce development programs uniquely offer learning opportunities beyond what is needed to perform the job; they develop participants’ soft skills that can facilitate adapting and integrating into the workplace. The work itself—caring for plants—is a life-affirming activity that opens individuals up to patience, trust, and self-awareness. In summary, these nature-based vocational programs offer benefits to the justice-involved population beyond in demand employment skills; they inherently nurture the less tangible qualities of personal growth that enable participants to channel anger or negative thoughts into productive skills and positive activities.

The Community Context: Tree Canopy Inequity and Crime

Often, social, racial, and environmental injustices are interwoven; minoritized lower-income communities, having been historically disinvested in, will experience poor air quality and increased flooding due to proximity of industrial facilities. Incarceration is considered a racial injustice since it is concentrated on men who are young, uneducated, and racial and or ethnic minorities ([The Pew Charitable Trusts](#) 2010).

Redlining was a racial injustice that led to modern day environmental injustice. Redlining refers to race-based exclusionary tactics in real estate where racial and ethnic minority residents were effectively barred from securing home mortgages in certain neighborhoods (Jackson 2021). Studies demonstrated that historically redlined neighborhoods have significantly less tree canopy (approximately 20 percent less) than neighborhoods comprised of U.S.-born white residents and newer housing stock (Locke and others 2021). Minoritized communities are subjected to disinvestment; disinvestment creates conditions that breed poverty and joblessness that in turn are indicators of underserved communities and are empirically linked to crime (Powell 2021). Studies performed in Baltimore, MD, found that an increase in tree canopy was associated with a decrease in crime (Troy and others 2016). The hypothesis reversing this finding, that individuals who commit a crime hail from communities lacking tree canopy, requires more research. If the lack of trees can be linked to a myriad of environmental, social, and economic issues; then vice versa, planting more trees and growing an equitable urban forest could address society's most complex challenges in public health, economic hierarchies, ecological balance, and possibly crime.

“The most robust solutions for ecological, social, or economic problems are often integrated solutions that recognize the connectedness and interdependence of both related and seemingly unrelated variables.” (Galvin and others 2020)

Urban forestry workforce programs are showing the viability of tree planting to benefit disenfranchised communities. These programs are creating economic opportunities for residents and improving the environment within their neighborhoods. As progress grows, the positive effects compound to build social cohesion, restore a sense of community, and break the social reproduction of incarceration. Residents of the very communities experiencing tree inequity must be part of the solution; tree equity can only be achieved through thoughtful, community-driven input. Business owners in the community should be contracted to plant, maintain, and manage the trees. If the businesses to plant and maintain trees do not exist within the community, residents should be empowered to start their own business to meet this market gap and build the community's economic base. The biggest indicator of a returning citizen's ability to secure a job is the state of the economy in the community they return to.

Focus of this Report

Culled from publications and interviews, this report synthesizes and highlights several programs across the U.S. working at the convergence of the justice system and urban forestry industry. All the featured programs were initiated and developed independently of one another, but collectively they uplift the urban forestry sector and inspire a growing movement of programs that seek to address at once the injustices, inequities, and economic immobility that burden disenfranchised communities.

The featured case studies document programs uniquely tailored to provide services that address the needs and challenges faced by incarcerated or previously incarcerated persons. The programs aim to educate and build skills for long-term sustained success. For example, many demonstrate the value of trees and how our livelihoods depend on them, some teach entrepreneurship, and some leverage the expertise of other organizations to promote financial literacy.

Although geared towards practitioners looking to adopt and implement workforce development programs in urban forestry, the report's framework and lessons learned can readily be applied to fields beyond urban forestry. This volume was designed to spark inspiration among practitioners, break down silos, reframe existing paradigms, and provide proof that many with past convictions want to contribute with the hope of ultimately removing the stigma of incarceration.



“Even our worst decisions don’t separate us from the circle of humanity, and if we aren’t willing to understand lives [of those incarcerated] then we are doomed to keep on repeating the tragedy of [their] lives.” (Moore 2018)

—Wes Moore
*(Author, Entrepreneur, &
Former CEO of the
Robin Hood Foundation)*

Program participants learn climbing knots to prepare for arboriculture jobs. Courtesy photo by Shea Zwerver.



Case Studies

Pennsylvania's Correctional Conservation Collaborative

With a name inspired by President Franklin D. Roosevelt's Civilian Conservation Corps, the Correctional Conservation Collaborative (CCC) is a workforce development program focused on providing skills in arboriculture to incarcerated individuals nearing release.

The idea for CCC stemmed one individual's interest in restorative justice. The PA Department of Conservation and Natural Resources (DCNR) Urban Forestry Coordinator at the time, pitched the program idea to sister agency PA Department of Corrections (DOC). Serendipitously, DOC's State Correctional Institution (SCI) Rockview operated a minimum-security facility called the Forestry Camp. Surrounded by approximately 2,500 forested acres, the Forestry Camp was an ideal location for an arboriculture training program—it already offered forestry-related work opportunities maintaining a tree nursery, harvesting trees, milling boards, and splitting firewood to some of the 72 men who lived there.



PA Game of Logging instructor, Kevin Snyder teaches a group chainsaw safety. Courtesy photo by PA DCNR.

Facing page: New Jersey Tree Foundation Green Streets crew at a planting site. Courtesy photo by NJ Tree Foundation.

PURPOSE

Provide employable skills in arboriculture and forestry to incarcerated individuals nearing release.

STRUCTURE

- Intensive trainings, held every fall, are typically 10-12 weeks long, 2-3 days per week
- Total training hours range from 35 to 75 hours
- Special topics are offered as day-long workshops in winter and spring

FUNDING

- CCC responsibilities included as part of DCNR, DOC and Penn State Extension staff duties
- Occasional support from DCNR internal special funds
- Grants

PROGRAM PARTNERS & ROLES

- PA Department of Conservation & Natural Resources (DCNR) – lead coordinator, fiscal contributor, and secondary source of instructors
- PA Department of Corrections (DOC) – coordinator co-lead, recruits students, and provides guards, classroom space, and equipment
- Penn State Extension – primary source of instructors



Penn Line's Reymundo Rodriguez giving a bucket truck demonstration. Courtesy photo by PA DCNR.

The DOC connected that DCNR Urban Forestry Coordinator with the Forestry Camp Facilities Manager and the two worked concertedly to coordinate a multi-week training program. The new arboriculture vocational training first piloted in fall 2017 complemented the hands-on experience the men were already receiving. That first session was held over the course of 10 weeks, 2-3 days per week, with the intent of spreading out the educational content to allow participants a chance to digest the material. Typically, each day was broken into two 3-hour lessons. For example, Tree Biology might be taught from 8:30-11:30 AM, followed by a break for lunch, then Tree Identification would be taught from 12:30-3:30 PM. Some lessons included field time for inquiry-based learning, where participants were encouraged to exercise their curiosity and critical thinking. While this program could be implemented at a facility without such robust outdoor amenities, the training will only be enhanced if the landscape can act as an outdoor classroom.

All the lessons for this first program were held on Forestry Camp property. Since then, the CCC has piloted other trainings where, with pre-approval and proper coordination with the SCI, participants traveled to field sites within a certain mile radius from the institution. At these sites, such as county parks, participants receive hands-on training in pesticide application, planting techniques, and invasive plant removal.

The arboriculture training curriculum was developed almost entirely around the

International Society of Arboriculture (ISA) Arborists' Certification Study Guide. Drawing from industry-recognized materials when pitching the idea garnered the DOC's trust and support. The DOC is very much a proponent of training that can result in industry-recognized credentials and certifications. Ideally, participants would be able to sit for an ISA exam to receive a certification (e.g., Certified Arborist or Certified Tree Worker Climber Specialist) at the conclusion of the training. Exam eligibility, however, also requires years of experience working in the field that participants would need to fulfill.

UNIQUE MODEL FEATURES

- No dedicated staff, instead one primary coordinator who organizes the trainings
- The Facilities Manager at the Forestry Camp has the unique qualification of a bachelor's degree in forestry that makes communications around the training easy and undoubtedly has contributed to his support of the program
- Integrates supplemental lessons in entrepreneurship, urban wood utilization, and ecosystem benefits of trees
- CCC instructional materials are shared (online) with other institutions; program replicated at Ohio's Richland Correctional Institution in the spring of 2019
- Has a Facebook group where graduates of the program, once released, can share work experiences, job opportunities, and get inspired

For recruitment, the Facilities Manager posts a sign-up sheet at the Forestry Camp ahead of the training, and then whittles the list down to 12 to 18 participants. The DCNR Coordinator spearheads recruiting the instructors and setting a training schedule while maintaining contact with the Facilities Manager. Penn State Extension plays an integral role providing subject-matter experts in urban forestry, pesticide application, wood properties, and entomology. PA is fortunate to have five Penn State Extension Urban Foresters who, as part of their job, perform public education and programming. Each of them comes to the Forestry Camp to help teach lessons. The lessons are listed with instructors and their affiliations in the Appendix.

To maintain continued engagement with each cohort of trainees, specialized workshops such as pruning techniques, seed cleaning and propagation, and tree climbing are held throughout the year. Over 115 individuals have been reached across 19 program offerings at 2 SCIs. Those who want to pursue a career in tree care often keep in contact with the DCNR Coordinator who works with them to identify job opportunities where they are returning. At least six program alumni have gone on to secure positions in tree care and landscaping after released.

To learn more about the program, visit the [CCC website](#). View video about the program [here](#).



Donny Coffey, owner of Nature's Canopy, teaching tree climbing. Courtesy photo by PA DCNR.

LESSONS LEARNED

Begin small—and it's okay to stay small

The Forestry Camp is an ideal location for forestry and tree care training, and it has functioned well for the last several years. Ideally, the program will grow and expand to other prisons over time, but factors need to align for that to happen.

Each prison is different

Success relies on respecting the facility's rules and order of operations.

A local champion is critical

This program would not be as successful as it is without the Facilities Manager's support, receptivity, and open communication. A go-to person is needed at each prison.

Recruit a diversity of instructors

Lessons taught by different instructors breaks up monotony while addressing different learning styles.

The program coordinator should be a constant at each lesson

A coordinator can often weave together the relationship of various topics and lessons. Their consistent presence also builds trust in the program.

New Jersey Tree Foundation's Green Streets Program

Since New Jersey (NJ) Tree Foundation's inception in 1997, Executive Director Lisa Simms, nurtured the idea of a program that planted trees while employing men with a criminal history.

Lisa Simms, Executive Director of NJ Tree Foundation heard over and over "If I had a job I wouldn't be here."

Then, in 2006, her idea became reality with funding from NJ Department of Environmental Protection (NJDEP) Natural Resource Damages settlement funds—\$1.8 million. This launched the Green Streets Program. The award stipulated the funds go toward planting 3,000 trees over 5 years in any of the 50 affected NJ cities and towns where the damage (pollution) occurred. In addition to purchasing the trees, NJ Tree Foundation purchased equipment, including a dump truck, trailer, and bobcat. The funds also went towards hiring five men who were on parole at the time. These five men became the first team of Green Streets, and one of them, James Cunningham, is now the Green Streets Crew Supervisor.



Members of Green Streets planting a street tree.
Courtesy photo by NJ Tree Foundation.

PURPOSE

Offer men on parole meaningful employment and a living wage.

STRUCTURE

- 2-3 months of work during each of 3 seasons: spring, summer, and fall
- 3-4 positions each season, with opportunity to continue for men who want to stay on and are working out well

FUNDING

- Launched with \$1.8 million from a NJDEP Natural Resource Damages settlement
- Sustained with a fee-for-service model

PROGRAM PARTNERS & ROLES

- NJ Tree Foundation –umbrella non-profit running the Green Streets Program.
- NJ Parole Board and various halfway houses in Newark, NJ – supply NJ Tree Foundation with a pipeline of workers.



Members of Green Streets planting trees in a community park. Courtesy photo by NJ Tree Foundation.

Over 4 years, 7,349 trees were planted through Green Streets. Trees were planted upon request when eligible towns submitted applications. Green Streets built itself a reputation. Not too long after, local governments began approaching the foundation to plant more trees in their communities. Lisa devised a fee-for-service strategy that supported Green Streets into the future. Today, NJ Tree Foundation bids on tree planting and maintenance contracts, and uses the profits to sustain all NJ Tree Foundation programs. The Green Streets Program continues to evolve with community needs by responding to the growing demand for green infrastructure (GI). The program now offers GI installation in addition to tree planting

Crew Supervisor James Cunningham, having been in the NJ prison system himself, can relate to Green Streets team members, which makes him approachable. Team members talk to him

UNIQUE MODEL FEATURES

- Strong relationships with halfway houses ensure a pipeline of workers.
- Crew Supervisor can relate to where participants are coming from.
- Informal, spontaneous learning opportunities while working in the field.
- Crew members are paid \$15 per hour and time and a half if they go over 40 hours in a week; their hourly wage increases the longer they work for Green Streets.
- A key principle to the program is treating employees with respect and dignity.
- NJ Tree Foundation only plants trees where they are invited to plant, ensuring an investment in the trees' care and survival.

and he listens, often offering advice. He leads by being an example of what change can look like.

For some of the men, this program is the first time they are employed, stay employed, and visit communities outside their hometown. This experience may also be the first time they are treated with dignity and respect. Upon completion of their time with Green Streets, crew members receive a certificate of completion and a list of companies that hire men with a criminal record.

Green Streets has employed 112 crew members since 2006. Participants are encouraged to keep in touch when they leave Green Streets, but Green Streets does not track participants after they leave.

To learn more about the program, visit the NJ Tree Foundation on [Facebook](#) or check out the article on [Vibrant Cities Lab](#). View video about the program [here](#).

Green Streets employees planting street trees in a NJ community.
Courtesy photo by NJ Tree Foundation.

LESSONS LEARNED

Success=happy crew

Success should not be based on numbers or profit; the greatest measure of success is whether crew members enjoy their work, feel a sense of accomplishment, and earn a living wage.

Keep it simple and small

Bigger, more elaborate programs require more funding and overhead.

Equipment comes with pros and cons

Owning equipment (trucks, trailers, etc.) means immediate access and extended services, however, maintenance and repairs are always required, and sometimes at the least convenient time—budget accordingly.

Quality over quantity

People want to see trees in the ground yesterday, and lots of them, but when we are more thoughtful and slow down a tad, trees get better care and can flourish.



Michigan's Line Clearance and Tree Trimming Program

Michigan's Department of Corrections (MDOC) Vocational Village at Parnall Correctional Facility offers a slew of training programs for careers in the skilled trades. One of the newest, launched in June 2019, is the Line Clearance and Tree Trim (LCTT) Program.

When the Vocational Village was built, MDOC invited businesses to tour its state-of-the-art facility with the goal of prompting industry partnerships. DTE Energy was among the initial businesses that toured. Inspired by the Vocational Village mission, DTE created a first-of-its-kind tree trimming training program at the Parnall facility together with the International Brotherhood of Electrical Workers (IBEW) Local 17. MDOC stood up the program with a DTE Energy Foundation grant that made it possible to purchase climbing gear and build climbing structures (pictured below).



Participant practice climbing on utility pole structures. Courtesy photo by MDOC.

PURPOSE

Provide skilled training that allows returning citizens the opportunity to enter IBEW apprenticeships and earn a livable wage with nationally recognized certifications.

STRUCTURE

- Classroom and hands-on
- Program is typically 6 to 12 months, not to exceed 24 months, where length depends on participants' prior experience
- Open-entry/open-exit enrollment, limited to 15 participants at a time

FUNDING

- \$100,000 grant from DTE Energy Foundation covered start-up costs
- MDOC employs one full-time staff instructor
- Program operating costs are about \$10,000 annually aside from the 1 full-time employee's salary

PROGRAM PARTNERS & ROLES

- MDOC – program lead; funds a full-time instructor and provides trainees, classroom, and equipment
- International Brotherhood of Electrical Workers (IBEW) – members are DTE Energy vendors; assists with curriculum development and secures employment for program graduates
- DTE – initial fiscal sponsor; assists with graduates' job placement



Indoor simulated tree structures provide program participants an opportunity to gain hands-on climbing experience. Courtesy photo by MDOC.

As the LCTT training developed, there were adjustments to make for all projects partners – such as MDOC allowing prisoners the use of chainsaws and tree climbing structures – to bring the program into reality.

To participate in the LCTT Program, individuals go through an application process that includes taking an aptitude and interest exam, and writing an essay. The essay challenges applicants to think about why they want to pursue this line of work. Prior to assigning the essay—MDOC, DTE, and IBEW describe in detail what the job might entail to help the vetting process. The defining moment is when they begin climbing and get off the ground, that’s when some individuals change their mind.

As part of the training program, participants are put on track to receive their commercial

UNIQUE MODEL FEATURES

- Collaborative trifecta between a union (IBEW), an energy utility company (DTE Energy), and a state prison (MDOC)
- Individualized program with adaptations based on participants prior experience
- Produced a nation-wide template to fellow utility companies
- Includes obtaining a commercial driver’s license
- Participants with previous experience trimming trees can become a tutor in the program
- Program graduates receive ongoing support from MDOC, IBEW, and DTE Energy vendors following their release

driver's license; MDOC works closely with Michigan Department of State to help the men work through the driver's license restoration process prior to release. DTE and IBEW facilitate job placements for program participants returning to their communities. MDOC, IBEW, DTE, and DTE vendors work collaboratively to address systemic barriers to entering the workforce and obstacles to compliance. For example, adjusting parole officer check-in times to be either before or after working hours ensures continuity of the day's work while maintaining parole compliance. The LCTT Program partners realize that to prevent recidivism they must continue to work together on behalf of returning citizens.

To learn more, visit the [MDOC Line Clearance and Tree Trim Program](#). View video about the program [here](#).

LESSONS LEARNED

Identify a gap in the workforce

There must be a real industry need, even if it is only 5-10 workers. DTE is committed to offering reliable services, which includes trimming trees, and doing so efficiently. This program offers a workforce solution to DTE's needs.

Establish a pre-screening, vetting process

MDOC and IBEW work together closely to vet program participants and identify individuals committed to pursuing this career path.

Make adjustments as needed

Post-release, men were missing work to check in or do a drug test for parole, this was causing real issues with their employers. So MDOC worked with DTE to adjust these designated parole needs.

Utility pole structures provide participants hands-on climbing experience. Courtesy photo by MDOC.



Urban Resources Initiative's GreenSkills Program

Urban Resources Initiative (URI), established in 1989, is a university nonprofit partnership based at the Yale School of the Environment, engaged in urban and community forestry activities in New Haven, CT. GreenSkills, URI's green jobs training program, began in 2007 by engaging high school students in developing tree planting skills. In 2010, URI expanded GreenSkills to include adults who face barriers to employment and created a full-time GreenSkills Manager position to administer the program. Currently, URI's GreenSkills weekday team solely hires people with a history of incarceration, whereas URI's GreenSkills youth team employs high school students to work on Saturdays.

“Planting a tree is like a new life, starting from the beginning.”
-Will Tisdale, Field Crew Representative for Greenskills

URI is the sole source contractor for street tree planting in New Haven, CT. The city's budget determines how many trees can be planted each year under the contract. Typically, URI plants about 500 trees, which is also roughly the number of trees lost to mortality annually.



Greenskills crew members straighten street tree during planting. Courtesy photo by URI.

PURPOSE

Provide individuals with a history of incarceration an opportunity to achieve personal freedom and develop skills in tree planting and urban forestry.

STRUCTURE

- Two planting seasons: 6 weeks in spring, March to May; and 9 weeks in fall, September to November
- 8-hour days: 3 days (Monday-Tuesday-Wednesday) are programmed for tree planting with GreenSkills; and 2 days (Thursday-Friday) are devoted to EMERGE-led training, including personal development, literacy, math skills, and occupational competency

FUNDING

- Contract with the city of New Haven for tree planting, structural pruning, and managing the city-wide tree inventory
- City contract includes \$450 per tree to cover planting and maintaining inventory. The true cost of running the planting program is closer to \$600 per tree, and URI fundraises through grants and in-kind donations to close the funding gap.

PROGRAM PARTNERS & ROLES

- URI— manages and supervises tree planting program
- EMERGE—provides a pipeline of individuals to Greenskills and offers wrap around services to individuals
- City of New Haven, CT—contracts with URI



GreenSkills crew members plant a new row of street trees downtown (Spring 2017)

The GreenSkills weekday crew usually consists of six workers plus a Yale student intern and the Crew Supervisor. During the first week of employment, GreenSkills workers learn about safe working conditions, tree planting operations and terminology, and how to keep a tree inventory. After that, informal learning moments throughout the workday replace formal classroom lessons.

Since 2015, the URI GreenSkills Program has partnered solely with the New Haven-based nonprofit EMERGE to form their adult planting crews. EMERGE oversees the application, vetting, and interview processes; this allows URI to focus on their area of expertise—urban forestry. GreenSkills members work with URI 3 days a week, Monday through Wednesday, then go to EMERGE Thursday and Friday to receive wrap-around services, including literacy tutoring and financial coaching.

When members of GreenSkills are planting trees in the community, they are encouraged to

interact with the public. “It’s meaningful to have a public-facing role, these individuals are doing something for the community; it’s a sense of pride to be giving back and to be recognized publicly. It’s all about second chances. When members of the public thank the GreenSkills workers, the idea that someone is appreciating you really builds their confidence,” says Executive Director of URI, Colleen Murphy-Dunning.

UNIQUE MODEL FEATURES

- Works closely with another nonprofit; EMERGE offers tremendous wrap-around services.
- Yale University student interns gain clinical training.
- Street trees are planted when New Haven residents or businesses request a tree and agree to water it.
- URI manages New Haven’s urban tree inventory.

The goal of URI's GreenSkills Program for adults with barriers to employment is not to set up individuals with jobs in urban forestry, although they are completely supported if that is the path they want to pursue. Instead, URI uses tree planting as a mechanism to support GreenSkills adult team members as they re-establish and/or maintain personal freedom.

To learn more about the program please visit [URI's website](#). View video about the program [here](#).

Greenskills crew members pose during a park planting. Courtesy photo by URI.

LESSONS LEARNED

Find the right partner(s)

Working with different partners can come with challenges. EMERGE has been an incredible asset to URI because they externalize the vetting and hiring processes.

Map out restrooms

Before working in the field, locate public restroom in advance; they can be hard to find when needed.



The Greening of Detroit's Detroit Conservation Corps

The Greening of Detroit was founded in 1989 with the mission of guiding and inspiring the sustainable growth of a healthy urban community through trees, green spaces, healthy living, education, training, and job opportunities. Initially, they worked primarily with volunteers to reforest the city. Then, as the scale of their work increased, they needed additional capacity to care for the newly planted trees.

This led The Greening to expand their scope of work into developing workforce training programs. The first was the Green Corps youth employment program that has given thousands of low-income Detroit teens valuable work experience as they provided essential summer maintenance to trees planted in neighborhood parks and other green spaces throughout the city. Then in 2010, with the city's jobless rate at nearly 25 percent, The Greening obtained a U.S. Department of Labor Pathways Out of Poverty grant to launch the Detroit Conservation Corps (DCC) with the goal of training 2,500 Detroiters for green sector jobs. The DCC prepares residents for full-time employment in landscaping, arboriculture, and urban forestry jobs.



DCC team members learning chainsaw techniques. Courtesy photo by The Greening of Detroit.

PURPOSE

Enhance the quality of life for Detroiters by planting trees, repurposing land to create beautifully productive green spaces, and helping communities rebuild their neighborhoods while providing community engagement and education and offering residents marketable job skills through accessible training programs—creating opportunities by restoring hope, stability, and financial independence in communities.

STRUCTURE

- 5-week program, 4-6 offerings per year (spring, summer, and fall months)
- 200 hours of landscape apprenticeship training
- First Aid, CPR, and MIOSHA-10 certifications

FUNDING

- Launched with a U.S. Department of Labor Pathways Out of Poverty grant
- Sustained with \$1.2 million raised annually through corporate, foundation, and government funding
- Additional sustainment funds generated by Deploy the DCC Enterprise, a fee-for-service component

PROGRAM PARTNERS & ROLES

- The Greening of Detroit – nonprofit leading the DCC program
- Detroit Employment Solutions Corp, One Stop Centers – assist with recruitment and job fairs
- Private sector members of The Greening's Employer Advisory Committee – advocate for program growth; evaluate and update technical training to stay current with evolving industry practices



DCC members post-chainsaw training. Courtesy photo by The Greening of Detroit.

“Many of the community members being served through the program simply did not know such career pathways existed and how to connect with them.” -Monica Tabares, The Greening of Detroit

The DCC extends the pathway The Greening first established in communities beyond just getting trees in the ground, to employing residents to care for those trees and green spaces. Over the years, as Michigan’s economy rebounded, Detroit’s workforce challenge shifted from a lack of jobs to a lack of qualified candidates to fill job vacancies. This problem is not unique to Detroit; 45 percent of American green sector employers report they cannot find people with the skills needed. Originally designed to address the long-term absence of jobs for Detroit’s disenfranchised, DCC has enabled hundreds of disadvantaged residents to acquire the skills needed to access green sector jobs, which in effect has produced a pipeline of qualified workers for the region’s employers.

Serving many individuals with significant barriers to employment, such as a history of incarceration or substance abuse, the program integrates apprentice-based industry training with case management services, work-readiness support, and job placement assistance. During the 5-week program, participants complete an immersive and intensive course of study designed to deliver the exact skillset needed for green jobs—not only technical knowledge, but also mindset broadening, interpersonal, and behavioral skills.

The U.S. Labor Department-accredited curriculum teaches the basic principles of urban forestry, nursery care, and horticulture by using a combination of classroom instruction and field training. All participants graduate with 200 landscape apprenticeship hours, and valuable First Aid, CPR, and Michigan Occupational Safety and Health Administration 10-hour training (MIOSHA-10) certifications. The Greening of Detroit conducts 4-6 cohorts each year that train 80-160 individuals. The program’s job placement rate for new graduates is 87%. Since the program’s start, over 1000 Detroiters have received DCC training and placement in employment.

UNIQUE MODEL FEATURES

- A Federally Registered Apprenticeship Program
- Offers in-house wrap-around services
- Follows graduates for 2 years; conducts on-the-job check-ins at 3, 6, and 9 months
- A grassroots community engagement approach—recruitment teams go into city districts to meet people where they are—out and about in their neighborhoods, at churches, and in restaurants

The Greening of Detroit works closely with members of their Employer Advisory Committee to build and sustain successful workforce pipelines. Employer partners provide critical feedback on the trainings to ensure alignment with industry needs. Employers are also briefed about obstacles confronting DCC participants so they might jointly develop strategies to breakdown any barriers to success. The Greening of Detroit offers comprehensive wrap-around services that include financial literacy, resume writing, job interview skills, and case management for up to 2 years. If Corps members have transportation and/or housing struggles, the staff will work with them to find solutions and offer stability.

The Greening of Detroit presents an example of a non-profit that acted effectively to quickly expand its services and meet the growing needs of their community by installing green infrastructure, developing job training and environmental education, and providing health and wellness

programs. Essentially, DCC offers a jumping off point that meets people where they are in life.

To learn more about DCC and all the other Greening of Detroit programs, visit [their website](#).

LESSONS LEARNED

Word of mouth is very effective advertising

Most recruitment happens by word of mouth of participants

Evaluate and refine program regularly

The DCC strives to balance supporting participants current needs with pushing them to achieve their potential. For example, when participants were given a stipend at the end of each week, many would drop out after a couple weeks. Recognizing that connection led to adapting the stipend to a \$500 lumpsum at program completion and resulted in more people sticking around.



DCC members practicing chainsaw techniques. Courtesy photo by The Greening of Detroit.

Additional Program Models

Program Title	Summary Description
<u>Sustainability in Prisons Project (SPP)</u>	<p>A partnership founded by Evergreen State College and Washington State Department of Corrections; a comprehensive program that delivers lessons in science, sustainability and environmental education in all 12 Washington State prisons. SPP brings science and sustainability education to prisons through conservation projects, green collar education and training, and informative sustainable practices.</p>
<u>GreenHouse at Rikers Island, The Horticultural Society of New York</u>	<p>A unique program combining horticulture, gardening, and therapy. Students learn critical thinking, teamwork and collaboration as they grow herbs, vegetables and flowers. They have a publically available curriculum "Growing with the Garden." The program's emphasis is horticultural therapy.</p>
<u>Insight Garden Program (IGP)</u>	<p>In 11 prisons in California, and in Indiana and Ohio, IGP's curriculum covers sustainable systems and integrates emotional process work and ecotherapy so participants learn about green technology and basic gardening skills as well as life skills.</p>
<p>Happy Little Trees Nursery Program</p>	<p>On-site tree nursery in one Michigan DOC facility partnered with horticulture vocation program, trees are planted in partnership with the MI DNR.</p>
<u>Roots to Reentry, Pennsylvania Horticultural Society (PHS)</u>	<p>A hands-on training in landscape maintenance, soft skills, and leadership training for citizens transitioning back into their communities from Philadelphia Prison System. Upon program completion, graduates are connected with green industry employers for jobs.</p>
<p><u>Openlands</u></p>	<p>A registered Arborist Apprenticeship delivered over 3 years and 5,400 hours of on-the-job training that coordinates with industry to improve recruitment, retention and diversity in the field.</p>
<u>Baltimore Urban Wood Project</u>	<p>Based in Baltimore, a workforce development program supported in part by the U.S. Forest Service that hires people with barriers to employment to deconstruct row homes, salvage the good wood, and reclaim it for re-use.</p>
<p><u>Roots of Success</u></p>	<p>A stand-alone environmental literacy training program that can be implemented at any correctional institution.</p>

From the Field:

An Interview with Alex Smith

With Lincoln Park as the backdrop to his childhood home in Baltimore, Alex Smith gained an affinity for nature, an affinity that would continue to live on within him and guide his lifelong work and legacy. Alex's backdrop changed at the young age of 18 when he was sentenced to incarceration at Western Correctional Institute (WCI) in Cumberland, MD. When he got out of WCI the first time, he took up the first work opportunity that presented itself, working in a warehouse. Soon after, he found himself back at WCI, but this time Alex was able to infuse his love for nature into the prison, and after writing the Warden, Frostburg University and University of Maryland Extension staff, Alex and a few others were able to start a horticulture program at WCI and become Master Gardeners.

Over the years, Alex has held several jobs, where he gleaned various business philosophies and applied them to his own business today. Through his company, Division Street Landscaping, Alex employs others who are justice-involved or have been incarcerated. Alex is still able to call up his previous employers and ask them business questions and get their feedback—his network is vast and building relationships and social capital is something Alex strongly believes in, as is evident in his business model. In a conversation with Alex, he shared the following insights:

There is a certain amount of power that you have with creating a business. Being in prison you aren't in control of your own life, where being an entrepreneur lets you determine your own worth. I liked the idea of being my own boss.

I try to meet people and my employees where they are, show them the possibilities of where their life could be. Sometimes people need to be exposed to different ways of life to be able to start or create a new life for themselves. If you don't know then you don't know. It is not a one size fits all. You can't treat everyone the same; different people have different needs. Workforce



Alex Smith, owner of Division Street Landscaping in Baltimore, MD. Courtesy photo provided by Alex Smith.

development needs to include elements like mentorship and case management. Instead of “workforce development” I like to say that I am in the business of opportunity development.

There needs to be intentionality and accountability around workforce development programs. I see a lot of organizations focused on the numbers, like how many people were hired, how many trees got planted, but what about how many of those people are self-sufficient or have their own place to live. Some companies' floor may also be their employees' ceilings. Companies should show receipts that they are putting people into jobs. They should be held accountable for inclusive hiring and upward mobility. If 20 people graduate from a workforce development program and a company says they need 100 workers, then all 20 of those graduates should be getting absorbed. If companies aren't serious about hiring people or workforce development participants, then let's build the capacity of the smaller organizations and companies that are serious. For years, it has been about having a seat at the table—as a black man or ex-offender—but I don't want a seat at your table; I am building my own.

Alex Smith is doing just that—building a table and creating businesses that not only help give people jobs, but that improve the outlook and trajectory of their lives and their communities.



Forestry training at State Correctional Institution-Rockview in Pennsylvania.
Courtesy photo by Shea Zwerver

Considerations for Program Design

This report features case studies with the following components in common:

- Partnering with other organizations to elevate, sustain, and/or provide wrap-around services
- Creating a workforce pipeline for the urban forestry/green industry
- Serving individuals who face a barrier to employment due to having a criminal record
- Providing educational and vocational-training opportunities in arboriculture
- Supporting individuals to enter green careers

The following sections consider the commonalities of the featured case studies in the context of the elements that produce successful outcomes while walking through general guidance for establishing similar programs.

Getting Started

From the beginning, establish and clearly define the program's purpose and values.

Successful workforce training programs serving justice-involved individuals will blend a diverse set of partners to meet the social, emotional, physical, and logistical needs of the participant while building job skills. A program that serves multiple needs will join partners with different goals; finding value in participation will be key to each partner's involvement. This multi-faceted nature of a well-rounded program looks to create a mutually beneficial environment for partners as they support the various program objectives. Recognize that partners will have different goals and the program will need to appeal to their particular motivation.

- For example, the goal of a state correctional agency's involvement in a workforce development program could be to help reduce idle time for incarcerated individuals and/or to reduce recidivism.
- A private tree care company's purpose for engaging may be to train a pool of potential employees.

When developing a new program, start small. A pilot program provides an opportunity to identify and resolve program issues on a small scale or improve any weak links. “The Sustainability in Prisons Project Handbook” validates advantages of this approach; “demonstrating success at a small scale may also lead to better staff and partner buy-in and potential funding.” Program scale and scope can grow after proving feasibility. Resist pressure or temptation to focus on achieving immediate tangible results when implementing a program; these short-term gains (e.g., number of alumni, hours of training, number of trees planted, etc.) fall short when compared to long-term value of investing the time to build productive and positive partnerships that will serve the program and its participants into the future (LeRoy and others 2013). Before approaching correctional institutions, or any potential partner, gather data and statistics (e.g., recidivism rates, [tree equity score](#), job outlook, etc.) that demonstrate the need, build a case, and garner buy-in.

CLARIFYING YOUR VALUES

The **Sustainability in Prisons Project (SPP)**—a partnership-based program between Evergreen State College and Washington State Department of Corrections—developed this list of statements outlining what their programs are **not** designed to do ([SPP 2022](#)):

- Not designed to provide a source of cheap labor for environmental organizations: all participants must receive benefits (*which may include education & academic credit, professional development, training, and certifications*)
- Not designed to add stress and workload for corrections staff or incarcerated people—we intend to support culture change, improve work and living environment, and provide stress relief from prison life
- Not designed to “greenwash” prisons—all people, including people in prison, deserve access to environmental & sustainability education & opportunities to contribute. Over and over again we hear from incarcerated people and corrections staff that they want these programs;
- While some SPP programs save the prison system operating funds through reduced resource use, many programs are offered purely for their educational value. Our main driver is changing lives through education and opportunities for positive contributions.
- Our programs do not mandate that incarcerated people participate; SPP is available as an option. If people try our programs and don’t like them, we work with them to find a better fit. These programs don’t resonate with everyone and our shared success depends on shared interest and investment

Building Partnerships & Collaboration

Successful workforce development programs are built on and sustained through partnerships and collaboration. As illustrated by the case studies, workforce programs involving at least two to three partners are the most successful, because partnerships lead to economies of scale and foster the exchange of resources, advantages that increase the likelihood of success (Soricone and others 2013). When developing a workforce program, initial steps should include finding and engaging the right partners. Partners get involved when they find common ground among participants and the program objectives can be mutually beneficial. Program organizers should be able to communicate how the program aligns with each partner’s mission and can advance their organizational goals.

“Your career pathway program strength and impact is heavily influenced by the strength of your partnerships with relevant stakeholders.”
(Anderson and others, no date)

Government resources may be available for funding, guidance, or information. To bolster support from government agencies, communicate program alignment with goals and/or contribution to achieving objectives set-forth by state or city plans. Government-level forestry objectives are set forth in state [Forest Action Plans](#) (every state is required to have one), city Urban Forest Management Plans and/or [Climate Plans](#), and the U.S. Department of Agriculture, Forest Service sponsored [Ten-Year Urban Forestry Action Plan](#). The state [workforce development system](#) may provide funding for workforce development programs that support state objectives. Check out the [National Bureau of Justice Statistics](#) for data on local correctional populations.

The [Career Pathways Action Guide](#), developed by American Forests and located on the [Vibrant Cities Lab website](#), is a helpful resource offering step-by-step guidance to build out a workforce development/career pathways program. Table 1 builds off the Career Pathways Action Guide “Who to Partner with” section that lists potential partners and their capabilities. When designing a workforce training program, don’t try to reinvent the wheel; rather, find partners who already offer job training, or have a curriculum, or offer educational resources. From the beginning, establish the role of each partner and the capacity they will serve in the program. Consider the unique capabilities each partner offers in how they operate. This is not an exhaustive list of all the benefits each of these entities can bring to the table but provides a starting point.

TABLE 1.—Partner contributions and motivations (Adapted from [Anderson and others, no date](#))

Partnership type	Value they can bring	Value/benefits they receive
<p>Public-sector entities (e.g., state natural resources or forestry agencies, regional workforce investment/development boards, state or county human services agencies, city parks and recreation or public works departments, etc.)</p>	<ul style="list-style-type: none"> • Act as program facilitators; help coordinate across partners • State Urban and Community Forestry Programs and their coordinator(s) are a great starting point • Often have long-term employment opportunities • Own and manage lands (e.g., rights-of-way, parks, etc.), and have a backlog of maintenance needs that can offer hands-on learning opportunities for program participants • Offer public support services such as funding for workforce development initiatives, assisting with apprenticeship program development, and providing human services 	<ul style="list-style-type: none"> • Build capacity to meet environmental goals • Reduce recidivism • Build workforce pipelines and strengthen economies • Meet statewide goals set forth by the Workforce Innovation and Opportunity Act • Strengthen cross-sector partnership and collaboration
<p>Nonprofits (e.g., environmentally focused nonprofits, social service related nonprofits, wraparound/support service providers, etc.)</p>	<ul style="list-style-type: none"> • Can serve as the umbrella organization, facilitating the workforce program • Can play a critical role in finding and securing funding; have more flexibility with how money is spent • Some nonprofits acquire and manage land; creates an environment primed for hands-on training/learning opportunities • Owning and managing lands also creates a direct need for workers. Typically, nonprofits can hire individuals in a relatively quick turnaround time, especially compared to local or state government entities • Some can offer bridge or seasonal employment (since most nonprofits operate on grants, long-term employment of workforce program graduates is usually not an option) 	<ul style="list-style-type: none"> • Become eligible for other funding opportunities • Build internal capacity to manage their lands, if applicable • Serve a larger population • Partner with non-traditional entities/expand collaboration opportunities • Strengthen cross-sector partnership and collaboration

Partnership type	Value they can bring	Value/benefits they receive
Unions	<ul style="list-style-type: none"> • Can perform outreach and education to let prospective trainees/employees know of training and employment opportunities • Inform the training curriculum • Can champion apprenticeship and pre-apprenticeship programs. 	<ul style="list-style-type: none"> • Build a workforce • Elevate professionalism • Increased retention rates through investment in training • Strengthen cross-sector partnership and collaboration
Private sector businesses/Industry	<ul style="list-style-type: none"> • Can offer long-term employment opportunities. • Tree care companies, especially larger, national ones, offer training to upgrade skills for their existing employees. • Industry standards should inform the skill training incorporated in workforce programs. 	<ul style="list-style-type: none"> • Increased retention rates through investment in training • Tap into/leverage public funding opportunities • Build/grow a workforce pipeline • Strengthen cross-sector partnership and collaboration
Academic institutions	<ul style="list-style-type: none"> • Subject matter experts can be a resource; land grant colleges with extension offices often have staff who can provide instruction • Have experience creating courses and hosting training opportunities • Have the technical infrastructure (e.g., reservation systems) for training and continuing education credits • Students can serve as volunteers to assist with program instruction, administration, coordination, etc. 	<ul style="list-style-type: none"> • Increased research and study opportunities for students • Strengthen cross-sector partnership and collaboration • Tap into public funding opportunities
Correctional Institutions (e.g., state prisons, county jails, parole and probation offices, work release community correction programs, etc.)	<ul style="list-style-type: none"> • Offer an audience and/or supply of potential workers • Sometimes correctional institutions have land and/or infrastructure (e.g., greenhouse) that lends itself well to such instruction 	<ul style="list-style-type: none"> • Strengthen cross-sector partnership and collaboration • Tap into broader funding opportunities • Reduce recidivism • Expand vocational and educational programs

Partnerships require maintenance; program coordinators should regularly check-in with partners to communicate updates and needs, seek feedback, and express gratitude. Codifying partnerships creates a successful and sustainable framework. The roles, responsibilities, and expectations of each partner should be clearly defined in writing or through a Memorandum of Understanding (MOU). Any collaborative program should balance the benefits to each partner (LeRoy and others 2013).

Working with Correctional Institutions

Correctional agencies (state and local) are often motivated by programs and initiatives that can reduce recidivism; obtaining a job is one of the biggest factors contributing to lower recidivism rates and successful reentry. Therefore, clearly communicating industry demand and market needs can motivate correction agencies to participate in urban forestry workforce development training programs. The [U.S. Bureau of Labor Statistics \(BLS\)](#), [Occupational Employment and Wages](#) and [Occupational Information Network \(O*NET®\)](#) provide relevant statistics including current employment numbers, states and metropolitan areas with the highest employment rates, projected industry growth, wage earnings, and education requirements. Outline the program's capacity to develop skills that can transfer to other industries or jobs and support reentry, such as verbal communication and listening skills.

When planning a program requiring cooperation of correctional institutions (e.g., state prisons, county jails, and community correctional centers), keep in mind that many correctional institutions are stretched thin in terms of staff resources. Some institutions have policies requiring staff (e.g., correctional guard, foreman, etc.) to be present during training. This may further stretch staff resources to point of interfering with performance of typical work responsibilities and tasks. Relating back to the Getting Started suggestion to Clarify Program Values, the Sustainability in Prisons Project (SPP) outlined what their programs *are not designed to do*—one of the statements asserts that the program is not intended to add stress or increase the workload for corrections staff or those incarcerated. Any program will also have to be flexible to work around staff sickness and standard institution protocols.

Other considerations when selecting a correctional institution to pilot a program at include:

- **Institution proximity to partner organizations (e.g., social service providers, academic institutions)**—closeness makes participation easier for partners to fulfill their responsibilities such as career counseling or instructing lessons.
- **Correctional institution security level(s)**—dictates program flexibility, for example, the kind of materials and/or equipment that can be used when teaching lessons. Additionally, if the population was convicted of higher-level crimes, that may diminish their employability with tree care companies, eliminating a career pathway in the industry.
- **Institution property or surrounding landscape suitable and accessible for training**—landscape shapes training opportunities, for example, a grove of trees on the institution’s property could be used for hands-on tree climbing lessons. If outside access is limited, is there a space to build a climbing apparatus like Michigan’s Parnell Vocational Village; Detroit Edison Energy (DTE) helped build and install a man-made tree for climbing training.

Correctional institutions establish a timeframe for their staff to work with incarcerated people to identify vocational interests and aptitudes as well as develop a vocational training plan. As the workforce training program launches, arboriculture could become an option added to the list of training opportunities or industries offering future jobs.

UNDERSTANDING U.S. DEPARTMENT OF LABOR'S WORKFORCE AND OCCUPATION DATA RESOURCES

The U.S. Department of Labor provides two key sources of occupational information: the U.S. Bureau of Labor Statistics (BLS) and the Occupational Information Network (O*NET®). At a high level, the BLS data looks at projected job growth over ten-year increments, wage and salary data averaged across the Nation, and staffing patterns in each state and in metropolitan statistical areas (MSAs). The [O*NET system](#) compiles occupation-specific characteristics such as primary tasks performed in an occupation or the knowledge, skills, and abilities required (Hopson 2021) and experience requirements such as levels of education and/or training needed for the occupation [ETA, no date (a)]. The BLS and O*Net data are grouped by Standard Occupational Classification (SOC) codes, starting with major groups (23), minor groups (98), broad occupations (459), and detailed occupations (867). Tree Trimmers and Pruners (SOC code 37-3013) is a detailed occupation nested within Grounds Maintenance Workers and contained within the major group, Building and Grounds Cleaning and Maintenance Occupations (SOC code 37-0000).

As of May 2021, per BLS data, there were an estimated 41,920 Tree Trimmers and Pruners nationwide (relative standard error 5.8%) (OEWS 2021) with an estimated job growth of 10.6% (DataUSA, no date). However, these numbers may underestimate the industry, because BLS Tree Trimmer and Pruner occupational data may not capture individuals who work within environmental nonprofits, state agencies, or land grant university extension offices; these individuals may, instead, self-report and/or be classified under the occupation of [Forest And Conservation Workers](#) (45-4011) or [Forest and Conservation Technicians](#) (19-4071) or [Forestry and Conservation Science Teachers, Postsecondary](#) (25-1043) for example. Additional occupations that may not be captured include urban wood utilization and geographical information systems. Hence, this has implications for how 'workforce' and job projections are communicated; the projections for urban forestry workers may be much higher than an initial survey of BLS occupational profiles suggests. In 2017, BLS gathered and consolidated data regarding "[Jobs for People Who Love Being Outdoors](#)," and projected over 50,000 job openings between 2014 and 2024 for occupations related to working outdoors in the woods. Therefore, the need for workers and the job outlook for the tree care and urban forestry sector may be significantly greater than what is described on the BLS and O*NET Tree Trimmer and Pruner occupational profiles.

Reentry Support Services & Resources

Incarceration casts a long and lasting shadow over those formerly incarcerated, with far-reaching consequences that extend beyond the individual to their families and communities, and out to the broader economy (CAP Poverty Team 2020). Individuals leaving prison face many obstacles that include but are not limited to advancements in technology, finding and securing affordable housing, reconnecting with family and friends, and abstaining from drugs and/or alcohol. When inmates return home, they are suddenly confronted with all the demands and responsibilities of everyday life, as well as the repercussions of incarceration and their conviction (The Pew Charitable Trusts 2010). Often the most daunting concern among returning citizens is finding employment.

Americans believe strongly that individuals determine their own economic success through hard work, ambition, and other personal characteristics, but returning citizens face many external barriers outside of their control that hamper their opportunities and continue to suppress them.

Many prospective employers regard formerly incarcerated individuals with suspicion; this stigma ranks formerly incarcerated individuals low on the list of job candidates (The Pew Charitable Trusts 2010). Additionally, employers may over-cautiously interpret some state laws and internal company policies to dissuade them from considering formerly incarcerated candidates. An applicant with a criminal record is 50 to 63 percent less likely to get a callback or job offer than an identical applicant without a record (Pager and Western 2009).

The obstacles continue even when they obtain a job. The re-entrant may not have a driver's license or other government-issued photo identification—something many employers require upon hiring. Even if they have a driver's license, they may lack a vehicle or have limited transportation options. Available public transit systems may not extend out to some employment locations (e.g., many large warehouse and distribution centers where re-entrants can find jobs are located in rural areas) or may run a limited schedule causing challenges for those working second or third shifts. Some companies are coming up with solutions to address transportation barriers. Employers participating in career pathway programs that target justice-involved individuals need to be mindful of all the possible barriers participants face and be willing to find solutions around them to have a successful and sustainable program.

The U.S. Department of Labor provides incentives for employers to invest in job seekers facing barriers to employment (including the previously incarcerated) with [Work Opportunity Tax Credit \(WOTC\)](#) [ETA, no date (b)] and the [Federal Bonding Program](#) (FBP). The WOTC is a Federal tax credit—taxable employers claim the WOTC as a general business credit against their income taxes, and tax-exempt employers claim the WOTC against their payroll taxes (IRS, no date). The FBP provides fidelity bonds to employers who hire individuals whose backgrounds pose significant barriers to securing or retaining employment. The FBP protects the employer against losses (up to \$5,000) caused by the fraudulent or dishonest acts (e.g., theft, forgery, larceny, or embezzlement) of the bonded employee for the first 6 months of an individual’s employment (Author unknown, ©2022a). These incentives should be communicated when recruiting employers for workforce development or career pathway programs.

The U.S. Department of Labor also sponsors [CareerOneStop](#), a source of employment information that connects job seekers with workforce services in their geographical region. The thousands of American Job Centers (with names ranging from “CareerLinks” in Pennsylvania to “Workforce and Business Centers” in Colorado) across the U.S. are region-specific resources for job seekers that help people search for jobs, find training, put together resumes, etc. (Author unknown, ©2022b). Every state has a designated labor and/or industry agency (e.g., Pennsylvania Department of Labor and Industry) and an agency that oversees parole and probation (e.g., Ohio Department of Rehabilitation and Correction, Adult Parole Authority); these agencies are a good place to start researching resources and services available for justice-involved individuals and workforce development.

Measuring Success

Before launching a workforce development program, define success and determine how to capture program metrics and outcomes. Collect baseline data as well as status at a regular frequency to monitor progress that can verify program effectiveness and support the program's continued existence as well as to help secure future financial support (e.g., grants). If working with correctional institutions, find out how they already collect metrics for their vocational and/or educational programs. Then, use that methodology or build from it to fit program needs. Correctional institutions typically collect metrics on their programs based on requirements from state labor and industry and/or education agencies. If they are already collecting metrics, it will be helpful to at least use elements or similar language when planning metric collection protocols. Having the ability to demonstrate success will lead to better staff and partner buy-in and boost funding potential.

Possible measures of a program's success include:

- Number of training hours
- Number of program participants
- Completion rate
- Number of employed hours
- Rate of employment after program completion OR rate of placement into full-time jobs
- Direct earnings (dollars) of program participants (if applicable)
- Number of industry-earned credentials
- Recidivism rate of graduates; or for currently incarcerated, number of infractions/negative behavioral reports
- Number of acres restored or improved
- Number of trees planted and/or pruned
- Number of trees (i.e., data points) inventoried
- Tonnage of wood diverted from landfills (for programs incorporating the utilization of urban wood; (i.e., salvaging wood from buildings or milling fresh cut urban trees)
- Qualitative surveys (e.g., participants anonymously provide feedback at the end of the program, like program evaluations)
- Quantitative pre- and post-evaluations to show knowledge attainment (e.g., multiple choice questionnaire on topics that will be covered throughout the program—given on the first day, and again on the last day—then compare the scores)

Training Resources

POSSIBLE TRAINING ELEMENTS

List of hard skills to include in the programs. Although soft skills are not listed, they are equally as important to integrate into programs.

- Benefits/Value (economic, social, environmental) of Trees
- Arboriculture/Tree Care Career Opportunities and Pathways
- Tree Biology/Physiology
- Tree Identification
- Invasive Species (plant, pests, diseases) Identification
- Plant Health Care
- Soils
- Water and Nutrient Management
- Pesticide/Herbicide Application
- Pruning Equipment and Techniques
- Chainsaw Safety, Use, and Care
- Tree Selection/Siting & Planting Considerations (Right Tree, Right Place)
- Tree Establishment
- Worksite Preparation
- Tree Climbing Equipment and Knots
- Tree Climbing
- Tree Worker Safety
- Personal Protective Equipment (PPE)

LIST OF EDUCATIONAL RESOURCES

- [Arboriculture Pre-Apprenticeship Curriculum](#). American Forests
- Tree Climbers' Guide/Guia para trepadores de Arboles. Lily, S.J., 3rd edition.
- The Tree Climber's Companion: A Reference And Training Manual For Professional Tree Climbers. Jepson, Jeff.
- Manual of Woody Landscape Plants. Dirr, Michael.
- Planting and Aftercare of Community Trees. Elmendorf, William PhD.
- Tree Risk Assessment Manual. Dunster, Julian A., 3rd edition.
- ANSI A300 Tree Risk Assessment. TCIA & ANSI.
- Arborist's Certification Study Guide. Lily, S.J.

LIST OF INDUSTRY RECOGNIZED CERTIFICATIONS & CREDENTIALS

- Pesticide/Herbicide Certified Applicator or Registered Technician, Typically University Extension offices or State agriculture agencies proctor these exams
- [International Society of Arboriculture \(ISA\) Certifications](#)
- [American Society of Horticultural Science \(ASHS\) Certified Horticulturalist](#)
- [Tree Care Industry Association \(TCIA\)](#)
- Electrical Hazards Awareness Program (EHAP)
- Certified Treecare Safety Professional (CTSP)
- [OSHA Standards](#)

Conclusion

Investment in programs that successfully reintegrate people leaving correctional institutions and investment in programs that go towards building resilient communities through nature-based solutions do not need to happen in parallel but rather can happen in synchrony. In fact, when the two can take on a form together, they have far greater reaching impacts. It not only builds capacity for society to meet environmental goals, and creates a pipeline of qualified workers, but it educates individuals about the importance of trees and the value trees bring to clean water and air, and public health. When people learn about trees, they typically develop a greater appreciation for them and will value them. Vocational and educational correctional programs focused on environmental-related fields including but not limited to arboriculture, horticulture, and agriculture, have the unique ability to provide employable skills to individuals while offering emotional, mental, and cognitive rehabilitation.

“Science and sustainability education appears to foster an environmental stewardship ethic and influences emotional health, improving the quality of offenders’ lives while they are incarcerated and contributing to rehabilitation outcomes.” (Leroy and others 2013)

The incarcerated population is comprised of individuals who hail from neighborhoods that have been historically marginalized and disinvested in, and experienced environmental injustice. Research is demonstrating that the absence of trees and presence of pollution are experienced at greater magnitude by communities of color and lower income levels. It stems back to the lack of investment and allocation of resources made by government to these communities. Yet, change starts with acknowledgement, and over the last few years, the conversation of systemic racism and equity is at the forefront at the highest levels of the Nation ([The White House 2021](#)).

As more communities and businesses invest in tree planting, and as the urban forestry sector continues to experience growth, there lies tremendous opportunity to create jobs that can help lift people out of poverty, build tree equity and improve environmental conditions in communities, and reduce recidivism.

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