

# SERVICE & CONSERVATION CORPS: DEVELOPMENTS IN GREEN INFRASTRUCTURE



**The  
CorpsNetwork**

Strengthening America through  
service and conservation

# Service & Conservation Corps (Corps) Green Infrastructure Background

## Corps & Green Infrastructure

According to the Environmental Protection Agency<sup>1</sup>, “Green infrastructure uses vegetation, soils, and natural processes to manage water and create healthier urban environments.”

Corps have long been engaged in conservation and ecosystem management and restoration projects in urban communities and on public lands. Corps use those projects to provide hands-on work experience, informal STEM service learning, and certifications/credentials to young people in order to inspire the next diverse generation of conservationists and provide a career-ready workforce in project-aligned career pathways.



Corpsmembers planting an urban garden in Washington, DC

Corps’ work in this area encompasses the full range of what is generally thought of as green infrastructure, as opposed to “grey infrastructure” like concrete pipes and metal, such as: native plantings, rainwater harvesting, rain gardens, planter boxes, bioswales, permeable surfaces, green streets & sidewalks, green roofs, urban forestry, habitat conservation and restoration, multi-modal transportation, and wildlife management.

The Corps Network has also engaged with partners like Jobs for the Future (JFF) and Green For All to promote the use of Green Infrastructure and the many community benefits it produces:

- JFF is in the process of developing an analysis of the career pathways and career growth in the design, installation, operation and maintenance of green infrastructure in partnership with the US Forest Service and National Urban and Community Forestry Advisory Council. The Corps Network will provide guidance on the youth development aspect of green infrastructure projects.
- Green For All produced a video which features Corpsmembers and different city representatives discussing how utilities can translate the value of their green infrastructure projects to the community in “Clean Water Strong Communities:” <http://youtu.be/XKieXQbjwXM>.

<sup>1</sup> Environmental Protection Agency, “What is Green Infrastructure:” [http://water.epa.gov/infrastructure/greeninfrastructure/gi\\_what.cfm](http://water.epa.gov/infrastructure/greeninfrastructure/gi_what.cfm)



Corpsmembers planting trees in Oakland, CA

According to the American Society of Landscape Architects<sup>2</sup> - “Researchers are amassing a body of evidence to prove that green infrastructure works: these systems are shown to be more cost-effective than outmoded models of grey infrastructure, and also provide far more benefits for both people and the environment. Nature can be incorporated everywhere to provide many benefits at once.”

Corps can be easily incorporated into ongoing and planned infrastructure projects in a variety of project-based, education, and community outreach capacities, and new Corps could be created with an eye toward innovative partnerships with interested state and local governments or non-profits.

You can find the locations of Corps around the country by going to:  
[www.corpsnetwork.org/impact/corps-by-state](http://www.corpsnetwork.org/impact/corps-by-state).

If you would like to learn more about Corps of the Corps Network, partnership potential, or information on starting your own Corps, please contact:

Tyler Wilson  
 202-737-6272 or [twilson@corpsnetwork.org](mailto:twilson@corpsnetwork.org)

## Engaging Corps in Green Infrastructure Projects

### Corps' Technical Capacity

Corps handle their own recruiting, engaging diverse and local youth. They assume all of the administrative responsibilities of managing a workforce, including the provision of health care, worker's compensation, and liability insurance. They provide environmental education, safety training, tools, food, supplies, transportation, and sometimes housing. They employ skilled and experienced crew leaders and project directors to supervise the youth and oversee the work.

<sup>2</sup> American Society of Landscape Architects, “Green Infrastructure:” <http://www.asla.org/greeninfrastructure.aspx>

Corps crews that can be engaged on green infrastructure projects are self-contained including supervision, transportation, tools, gear, equipment, insurance, back-end support, and technical expertise. Corps also have the capacity and experience leading large volunteer projects, mobilizing and managing local volunteers and donations, and engaging residents of affected communities and local business.

## Community Benefits Strategies

One promising practice for engaging Corps in the investment in Green Infrastructure and associated water infrastructure projects is through a “community benefits” strategy. The Corps Network has worked with Green for All on encouraging these strategies, and green infrastructure career pathways, which have the benefit of promoting economic inclusion, creating job opportunities, revitalizing low-income neighborhoods, and fighting pollution while increasing ratepayer support for expensive infrastructure projects.

**Virtually all federal partners (99.6%) say they would work with Corps again.**



Corpsmembers plant trees in Baltimore, MD

Community benefits strategies should be included in infrastructure projects funded by federal, state, local governments and water utilities to produce positive effects in the cities and neighborhoods where water, wastewater, and stormwater projects take place. These strategies have multiple “wins” throughout the process from inception to project completion and on to future employment and economic development effects.

Green infrastructure investments lead to long-term careers in operation and maintenance, and other associated utility and/or conservation-oriented jobs. By offering training and hands-on learning experiences, employing, and providing education and outreach services to local residents through a community benefits strategy, governments and utilities can not only reduce unemployment but also help encourage environmental stewardship in communities traditionally left out of these movements which also helps to achieve important environmental justice goals.

<sup>3</sup> STAYING GREEN AND GROWING JOBS: Green Infrastructure Operations and Maintenance as Career Pathway Stepping Stones: <http://gfa.fchq.ca/focus/water/staying-green-and-growing-jobs-green-infrastructure-operations-and-maintenance-as-career-pathway-stepping-stones/>

Community benefits strategies can also provide a critical first step in securing support for often costly stormwater and wastewater infrastructure projects while developing the next generation of utility and conservation employees that are reflective of America's changing demographics.

By promoting environmental stewardship and introducing STEM learning, job training, and related career pathways to low-income workers and disconnected youth through Green Infrastructure projects, we can promote career exploration in the water sustainability field, and provide a "career-ready" workforce while accomplishing important projects with far reaching community benefits.

New research conducted by the National Park Service's Park Facility Management Division indicates that using Conservation Corps crews saved 65% in project costs and over \$50,000 on average when compared to what it would cost to hire contractor crews.

Corpsmembers prepare plantings in Waukegan, IL.



## Fee-For-Service Projects

Many Corps operate on what is known as a “fee-for-service” model. As the name implies, this entails contracting with a Corps for specific services on a given project.

For example, a city may have an abandoned lot they would like converted into a green space and play area with native plantings and run-off reduction measures. The City would contract with the Corps to provide the plantings portion of the project, and may include some community outreach services for a fixed cost, timeline, and contract.

With Corps’ high level of technical expertise and project management background, the project is completed on time and on-budget while saving money. Importantly, engaging Corps in this way also ensure more local young people are gaining valuable hands-on experience, bettering the community and themselves, and accomplishing important projects.

## The Corps Network

The Corps Network is the membership association of the nation’s 120+ Service & Conservation Corps (Corps) which enroll over 25,000 youth annually and work in every state and DC. Corps follow a model of adult mentors (Crewleaders) guiding crews of youth (16-25 & older veterans) which perform service and conservation projects in communities or on public lands. Tied to those projects, Corpsmembers receive educational, workforce development, and supportive services.

Corps enroll diverse Corpsmembers which last year included 60% from below the poverty line, 55% unemployed, 30% not in school and had no High School Diploma/GED, and nearly 20% formerly incarcerated or court-involved. In addition, 48% of Corpsmembers were minorities and 35% were women.



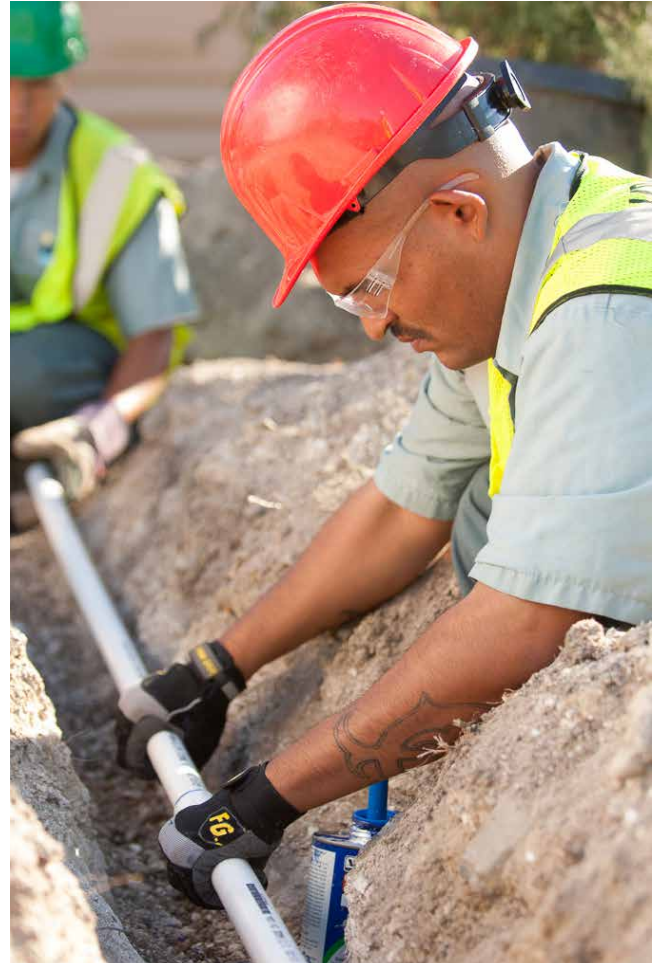
Corpsmember tending to a rooftop garden in San Diego, CA

## Corps Green Infrastructure Projects & Practices

### Civic Works - Baltimore, MD

**Project:** Stormwater Management Curriculum  
**Partners:** Center for Watershed Protection, City of Baltimore

Civic Works' Baltimore Center for Green Careers (BCGC) was created to transform Baltimore's local green economy into a pathway out of poverty. BCGC has developed highly successful training models on brownfield management, weatherization and home energy auditing which provide individuals with industry recognized credentials and entry-level employment upon graduation. BCGC also provides training in stormwater management through their brownfields training and is in planning to create a city-recognized stormwater management credential in partnership with the Center for Watershed Protection as well as private industry, city officials and other workforce development CBO's. BCGC and Civic Works' other training modules are incredibly successful with 90% of BCGC's current graduates finding employment and earning between \$12 and \$16 dollars per hour.



Corpsmember installing an irrigation system in San Diego, CA

### Conservation Corps North Bay - San Rafael, CA

**Project:** Sediment Reduction  
**Partners:** National Park Service, Marin County Parks, State Water Resources Control Board

Conservation Corps North Bay (CCNB) is a pioneer in the local Corps movement and serves Marin County and Sonoma youth. CCNB provides year-round job training and education services to youth and has partnered with the National Park Service and Marin County Parks to reduce sedimentation of Olema Creek. The project, which was funded through the Clean Water State Revolving Fund as well as a State Water Resources Control Board Coastal Nonpoint Source Pollution Control Grant, employed crews to rehabilitate habitat and trails near highly sensitive resources which experience high levels of

## Conservation Corps North Bay continued...

pedestrian and equestrian use. Using current knowledge of stormwater runoff and trail design, Corpsmembers rerouted trails to avoid creek floodplains and run parallel to contour lines thus decreasing the possibility of excessive erosion and making sustainable trails more desirable for recreationists.

**Project:** Watershed Restoration & Workforce Development

**Partners:** Sonoma County Workforce Investment Board, Sonoma County Water Agency

CCNB's Sonoma County Youth Ecology Corps works with the Sonoma County WIB, and the Sonoma County Water Agency on leveraging WIA and County funding, and provide employment opportunities for youth working on stream restoration and green infrastructure projects. These projects not only help the county's bottom line, but also provide important work experience, small stipends and job skills to Corpsmembers. The water agency provides matching funds and also provided projects, expert guidance in the field, mentoring, and career exploration activities for the youth like touring the water agency facilities and instruction on ecology and the impacts of the projects. The program also includes an Opportunity Fair that features exhibitors to provide information about educational and conservation career pathway options for Corpsmembers. Corpsmembers also design a Gallery Walk to celebrate their accomplishment and display their work portfolio.



Urban gardening in Syracuse, NY

## Earth Conservation Corps - Washington, DC

**Project:** Green Works

**Partners:** DC Green Works

Earth Conservation Corps (ECC) partnered with DC Greenworks, a leader in green infrastructure and low-impact storm water management, and urban forestry to install a Green Roof on the ECC office. The project took place at ECC's Matthew Henson Park location and was touted by ECC and DC Greenworks as the first modern green roof installation in the District of Columbia. Earth Conservation Corps continues work on green infrastructure, linking the effort to save the Anacostia River with the engagement of disenfranchised youth in education, job training, and volunteer-recruitment activities. ECC also provides workforce development programming in green industry jobs such as low impact development, basic energy efficiency audits, and weatherization that help transition corps members into jobs, pre-apprenticeships, and/or advanced level training.





Corpsmembers painting a cool roof in  
New York City

## Green City Force - New York, NY

**Project:** Cool Roofs

**Partners:** New York Cool Roofs Campaign

Green City Force (GCF) prepares New York youth for careers in the clean energy and green economy by providing them with work experience, training, and education services. GCF recently joined the New York Cool Roofs Campaign as one of the primary workforce providers tasked with coating 600,000 square feet of rooftop with reflective coating to generate an 18% energy savings for each building. In addition to their work, GCF Corpsmembers were able to recruit and supervise over 1000 volunteers to work at over 10 sites. Throughout their term-of-service, Corpsmembers also take part in Green City Academy – the classroom and community-building component of GCF. The Academy includes lessons on professionalism, math and literacy as well as a full Building Performance Institute certification. GCF was named Most Innovative Nonprofit in NYC by Mayor Bloomberg in 2013.

**Project:** Urban Agriculture

**Partners:** New York City Housing Authority (NYCHA)

GCF works with NYCHA on their Garden & Greening program by engaging Corpsmembers to build, maintain and engage NYCHA residents in urban gardens, and assisting with the launch and facilitation of Resident Green Committees (RGCs). Corpsmembers have also developed urban farms and community composting initiatives. The Garden & Greening program also engages Corpsmembers in environmental education and increased efforts to harvest storm water.

## Limitless Vistas, New Orleans, LA

**Project:** Water and Wastewater Utility Career Training

**Partners:** Sewerage and Water Board of New Orleans,  
Veolia Water North America Operating  
Services

Limitless Vistas partners with the Sewerage and Water Board of New Orleans (S&WB) and Veolia Water North America Operating Services to prepare Corpsmembers for an internship program which involves youth in entry-level job opportunities in the water and wastewater utility sector. Corpsmembers are trained in a variety of water and wastewater management and treatment methods. They learn about stormwater drainage, water purification, treatment facility maintenance and administration through rigorous classroom and hands-on job training. They also learn about water pollution, runoff retention, and water use reduction. The program centers on preparing individuals to pass the Water/Wastewater Operators Test and ultimately obtaining an Operators Certification. Added benefits of the program are bringing new faces into this industry to replace an aging workforce, and building relationships with industry professionals that enhance Corpsmembers chances for long-term careers where they can carry forward Corps' conservation and environmental stewardship ethos into their water utility career.



Corpsmembers testing water quality as part of a wetland restoration project in New Orleans, LA

## LA Conservation Corps - Los Angeles, CA

**Project:** Rainwater Catchment, Cisterns, Bioswales Training

**Partners:** Boeing Foundation; Long Beach Community  
Action Partnership; American Rainwater  
Catchment Services Association

With funding provided by the Boeing Foundation, the Los Angeles Conservation Corps (LACC) created the Rainwater Harvesting Program which provides Corpsmembers training in stormwater management with curriculum recognized by the American Rainwater Catchment Services Association (ARCSA). Corpsmembers learn theories of water conservation and rainwater harvesting systems from an ARCSA certified instructor and apply those skills on cistern and bioswale construction for local non-profits. A recent project with the Long Beach Community Action Partnership resulted in 650 gallons of onsite rainwater storage, a vegetated bioswale to help recharge groundwater, and the capacity to divert 1,575 gallons of rainwater from sewer systems per year. LACC furthers corpsmembers' career opportunities by connecting individuals



Corpsmembers installing a solar panel in Los Angeles, CA

### LA Conservation Corps continued...

**Project:** Los Angeles River Restoration

**Partners:** Los Angeles Community Development Department and Board of Public Works' Bureau of Sanitization

LACC established the LA River Corps to provide much needed restoration work on the LA River as well as increase community awareness about watershed pollution and create learning opportunities for local youth. LA River Corps combines classroom education with hands-on experience and Corpsmembers participate in sessions covering topics such as watershed habitat, native landscaping, river hydrology, ecology, and water quality management efforts for the river. For projects, Corpsmembers provide education outreach programs to youth from nearby schools and youth organizations; gain hands-on experience with native plantings, landscape design, maintenance, construction of pocket parks, water conservation and recycling conservation projects, and flood management service projects; and removal of debris and illegal dumping.

### Mile High Youth Corps - Denver, CO

**Project:** Energy and Water Conservation Program

**Partners:** Denver Water Department; Xcel Energy; LEAP

Mile High Youth Corps (MHYC) generally provides youth ages 16-24 with career exploration, hands-on training, and educational opportunities through paid work on community service projects. MHYC's Energy and Water Conservation Program demonstrates an innovative partnership with Denver Water, Xcel Energy, and LEAP in which Corpsmembers pair classroom water (and energy) conservation classes with on-the-job training to gain marketable skills in the "green home" industry. Curriculum includes

## Mile High Youth Corps continued...

lessons on home water assessments and use reduction practices/measures, client intake and interaction, and toilet assessment, repair or replacement. All students must pass a skills competency testing with a 100% before being allowed to retrofit homes. In 2013, 4,498 low-income homes in the Denver area were provided water and energy retrofits which saved a collective \$90,275 in utility bills.



Corpsmember installing a water-saving toilet in a low-income home in Colorado

## Onondaga Earth Corps - Syracuse, NY

**Project:** Storm and Wastewater Runoff Reduction

**Partners:** Syracuse Water Department

Since its inception, Onondaga Earth Corps (OEC) has dedicated itself to rehabilitating Onondaga Creek; a waterway which runs through downtown Syracuse, NY and into the Lake Erie. Through rain garden installation, bioswale construction and maintenance, rain catchment system installation, and urban forestry projects, OEC uses green infrastructure techniques to decrease storm-water runoff which overflow the sewer system and pollute the creek. OEC members also take part in development workshops to explain the benefits of green infrastructure to city executives and community members. OEC also provides Green Roof demonstrations to show how green roofs can be accessible and adapted to a variety of structures. OEC Corpsmembers understand the relationship between people and the urban ecosystem, engage in informal STEM-focused service learning, and train for future jobs and careers in conservation-related fields.

## Operation Fresh Start - Madison, WI

**Project:** New Habitat Restoration

**Partners:** Riverland Conservancy

Operation Fresh Start (OFS) works to engage disadvantaged youth in comprehensive youth development programming while improving urban and rural settings in Wisconsin. OFS has partnered with the Riverland Conservancy to restore and protect vital habitat of the 1,800 acre Merrimac Preserve which provides an integral wildlife corridor between the Baraboo Bluffs and the Wisconsin River. OFS Corpsmembers provide wildlife habitat, protect biodiversity, and improve ecosystem function. Specific



Corpsmembers removing invasive species, restoring forest in Wisconsin

### Operation Fresh Start continued...

restoration green infrastructure activities the crews have been involved in include: wetland, prairie, and natural oak savannah restoration; invasive species removal; trout stream restoration; and native seed collection and planting. Corpsmembers have also constructed stormwater retention/wildlife ponds in other areas of Wisconsin.

## Powercorps PHL - Philadelphia, PA

**Project:** Innovative Green Infrastructure & Conservation Partnerships

**Partners:** State of Pennsylvania, City of Philadelphia, Philadelphia Water Department and Parks and Recreation Department

Powercorps PHL operates numerous crews working in various areas of conservation in the City of Philadelphia including on green infrastructure. Corpsmembers have conducted many different types of green infrastructure projects throughout the city such as rain gardens, stormwater planters, stormwater tree trenches, and invasive species remediation. Powercorps coordinates and trains Corpsmembers to eventually get jobs with the city through the Mayor's "Greenworks Philadelphia." Corpsmembers tackle pressing environmental challenges, including the need for improved stormwater management, increased tree coverage, and revitalized public land. Corpsmembers also provides community outreach to residents on the roles they can play in preserving watersheds. Powercorps plans to connect over 300 young adults to meaningful employment, post-secondary programs of study, or continued national service.



Park restoration in San Francisco, CA

## San Francisco Conservation Corps - San Francisco, CA

**Project:** Erosion Control and Park Improvement

**Partners:** San Francisco Recreation & Parks and the Department of Public Works

As a key partner with San Francisco Rec. & Parks and the Department of Public Works, SFCC has played a major role in restoring and enhancing dozens of public spaces in the San Francisco area. In 2013, California Proposition 84 Park

Bond provided funding for SFCC to complete extensive erosion-control measures at the Buena Vista Park – San Francisco’s oldest public park. Crew members rebuilt trails, staircases and retaining walls to create safe recreational opportunities for city residents as well as curb excessive erosion which was degrading park habitat. Corpsmembers at the SFCC obtain their high-school diploma or GED by attending the on-site John Muir Charter High School in addition to comprehensive Career Counseling support. Corpsmembers have gone on to conservation-oriented jobs at Solar City, SF Department of Public Works, SF Department of the Environment as well as various apprenticeships in local unions.

## Santa Fe Youthworks! - Santa Fe, NM

**Project:** Santa Fe River Restoration

**Partners:** Santa Fe Parks Trails & Watershed Division and Streets Drainage Division; Hytech Riparian and Range Management

In partnership with Santa Fe City Parks, Trails and Watershed Division and the Streets and Drainage Division, as well as Hytech Riparian and Range Management, Santa Fe Youthworks! created the River Restoration Crew focused on rehabilitation of the Santa Fe River through green infrastructure. With its headwaters located just south of the city, the Santa Fe River watershed is a vital source for irrigation and drinking water but constantly faces threats of pollution from urban run-off and stormwater. The one time perennial river now lays dry for most of the year due to over-extraction and poor management. Santa Fe Youthworks! employs crewmembers ages 16-24 every year to recuperate the river while providing them with job skills, learning opportunities, and a chance to obtain their GED. The crew installs natural erosion control measures using lava rock and tree branches which slow stormwater and curb pollution much better than nonporous materials such as cement. They also remove invasive plant species, plant native species, remove litter, and rehabilitate city parks along the river. To date, 125 Santa Fe youth have taken part in the program.

## The Sustainability Institute - Charleston, SC

**Project:** Charleston Upper Peninsula Initiative

**Partners:** City of Charleston

The Sustainability Institute (SI) seeks to empower South Carolinians to conserve energy and reduce their environmental footprint. The institute runs an Energy Conservation Corps (ECC) which provides workforce development and green job training for Charleston youth ages 18-25 as well as the Energy Efficiency Jobs Network which connects private industry, municipalities, and non-profit organizations to bridge local building industry professionals with students in training. Currently SI is partnering with the City of Charleston to produce and facilitate a community planning and urban redevelopment effort on the Charleston Upper Peninsula. Once the plan is underway, SI will work to involve ECC crews in various water conservation and management projects in the area including urban forestry, park development, and upgrading stormwater infrastructure and green infrastructure. ECC corpsmembers currently undergo trainings in home water conservation measures and apply those skills by retrofitting homes for low-income Charleston residents.



Coastal Restoration in San Francisco, CA

## Washington Parks & People - Washington, DC

**Project:** Marvin Gaye Park Wetland Restoration

**Partners:** DC Department of Parks and Recreation & Department of Energy

Marvin Gaye Park is an urban refuge located in Southeast DC on the Watts Branch Stream, a tributary of the larger Anacostia River. In 2001, Washington Parks and People Green Corps began a campaign to restore the health of Watts Branch by revitalizing parks along the stream. Through this project,

Corpsmembers removed invasive species and planted native saplings along the stream in the park. The DC Department of Parks and Recreation as well as the District Department of Energy partnered to provide Corpsmembers with training in urban forestry, topography, native wetland species and invasive species identification. Following their completion of the program, Washington Parks and People provide corpsmembers with job referral and placement services as well as provide connections with various municipal agencies and green industry leaders.



Corpsmembers installing solar panels in New York City

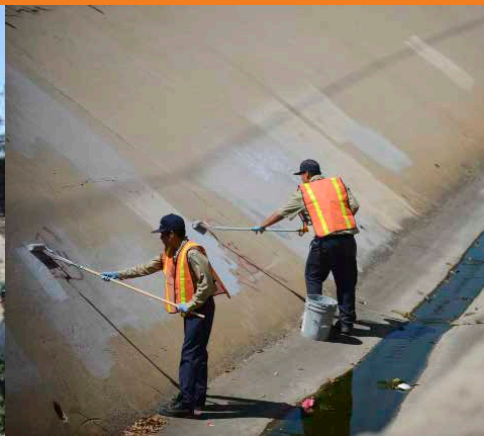
## Conclusion

Corps of The Corps Network have extensive experience in youth education, workforce development and green infrastructure project completion all across the country. As federal, state, and local government, look to improve their water infrastructure, and utilities look to replace an aging workforce – Corps offer a replicable model and sustainable partnership opportunities that accomplish multiple goals.

Existing Corps can be easily incorporated into ongoing and planned infrastructure projects in a variety of project-based, education, and community outreach capacities, and new Corps could be created through innovative partnerships with interested state and local governments or non-profits. You can find the locations of Corps around the country by going to: [www.corpsnetwork.org/impact/corps-by-state](http://www.corpsnetwork.org/impact/corps-by-state).

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