

# brownfields

Success Story

## COMMUNITY LED ACTION TO CREATE THE EMERSON STREET GARDEN

In Portland, Oregon, an EPA brownfields assessment grant helped turn an abandoned urban lot into a community garden.

### HIGHLIGHTS

The permeable surfaces in the garden capture rainfall and stormwater, easing the strain on Portland's water collection and treatment systems.

The garden will provide multiple benefits to the immediate community – from growing food to teaching kids about the history of the neighborhood.

The contaminated soil has been moved to a fenced area at the back of the property and a test using plants for phytoremediation to immobilize and remove contaminants. If unsuccessful, contaminated materials will be removed for disposal.



Former resident, Joanne Green (left), and Groundwork Portland's Cassie Cohen at the Emerson Street Garden site.

Credit: Jason King/TERRA fluxus

EPA's Brownfields and Land Revitalization program and the National Park Service Rivers, Trails, and Conservation Assistance (RTCA) program have had a successful 12 year partnership with Groundwork USA. Groundwork USA is a network of independent non-profit organizations called Groundwork Trusts focused on stabilizing and revitalizing their communities through projects and programs that improve their environment, economy and quality of life.

Similar to the community led efforts of the Brownfields Program, the Urban Waters initiative is an effort to restore and protect urban water bodies and adjacent lands. U.S. EPA's goal is to integrate and leverage existing programs to foster increased understanding and a sense of ownership of waters and surrounding land in communities across the country. This is especially important as urban waters impact large populations and can influence far-reaching land-use decisions.

### Community Gardens, Land Revitalization and Urban Waters

Community gardens are a valuable land revitalization approach and a vital part of the Urban Waters initiative. Proper soil management practices, including

contamination cleanup, are important in mitigating stormwater runoff and its impact on urban water systems. Improving the soil quality with the addition to compost and organic matter, expanding permeable surfaces and plant life contained in community gardens captures rainfall and stormwater; thereby easing the strain on a community's water collection and treatment systems. Community gardens also serve as hands-on educational tools, teaching residents about soils and their connection with water, water resource management practices and the value of having good water quality. Gardening projects, such as rain barrels to capture stormwater, provide lessons on and visual reminders of how water systems impact a community and its inhabitants.

Empty lots in dense, residential neighborhoods exist in every corner of Portland, Oregon and the lot at 822 NE Emerson Street, in this sense, is not unique. A single-family home stood at this lot until it fell into disrepair and was demolished in the 1980s, lying vacant for the next few decades. What is unique about this site is how a dedicated network – consisting of non-profit organizations, community groups, government agencies, and countless others – is transforming the property from a contaminated, vacant lot into a community garden and living educational laboratory.

### **Project History**

This process started when a local resident, eager to see the site put to use, performed some independent soil testing that confirmed the presence of lead. By that time, the lot had become the property of Multnomah County which looked to EPA for assistance. Through \$19,000 in Brownfields Assessment grants and support from the City of Portland Brownfields Program, the County was able to perform Phase I and Phase II assessments that expanded upon the initial results. Other than the lead contamination, the site was in relatively good shape. Multnomah County transferred ownership of the property to the Oregon Sustainable Agriculture Land Trust (OSALT), which will maintain the site in perpetuity for sustainable local agriculture and education. OSALT provides a site manager for the property, but brought in Groundwork Portland to facilitate the community involvement and help leverage funds.

Groundwork Portland is part of a larger network of other Groundwork trusts, within its parent organization, Groundwork USA. Groundwork USA partners with EPA's Brownfields program and the National Park Service to restore neighborhoods and empower local communities for social and environmental improvements. Groundwork Portland is particularly interested in redeveloping contaminated properties.



One of the most significant goals of this project is to develop a transferable process for cleaning up small residential lots that is inexpensive and helps create an amenity for the immediate community. The project will clean up the individual site while building local awareness about turning brownfields into public gardens through a community-driven process.

The first step was to work with the community to decide on the most beneficial reuse of the site. Groundwork Portland organized and coordinated a working group to discuss:

- How to make the site a community resource;
- The impacts of demographic changes on the neighborhood; and
- Environmental justice concerns.

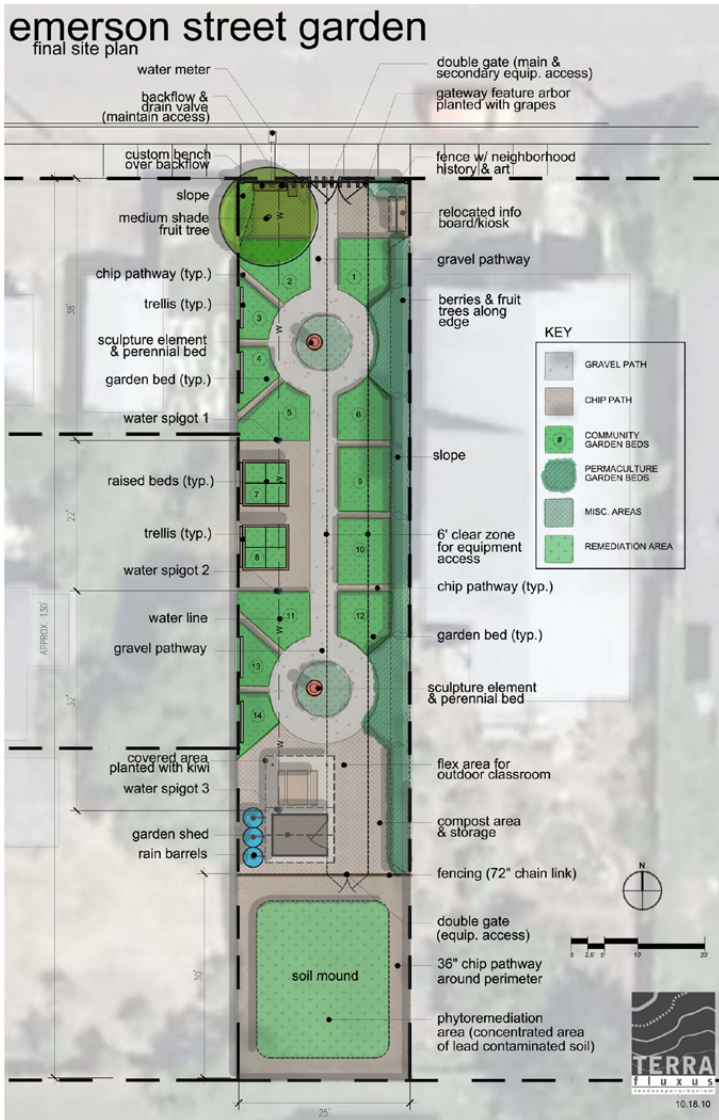
The community developed a vision for a garden that would provide space for sustainable food production, educational resources for local students of all ages, and highlight the history of the immediate neighborhood. A local landscape planning company volunteered its services and developed a site plan for the garden based on input from community design forums. Ultimately, the working group developed a plan for how to sustain the project financially and maintain the site.

### **Engaging Community Stakeholders**

This community involvement process and vision for the project is evolving, but that hasn't stopped progress on the site cleanup. To date, dedicated volunteers, governments, and local businesses have managed to make significant progress towards the vision.

Utilities were installed, according to the site plan. Oregon Tradeswomen, a group dedicated to helping women learn trades, built and donated a garden shed which was installed on the site. An educational kiosk on the site fitted with an eco-roof will teach the community about affordable healthy soil and water systems and





Properties like this one can be found in nearly every community. The challenges included how to make use of such a small site and how to manage the project as a community-led effort. To overcome these obstacles, the working group of between 12 and 20 people and numerous other volunteers have developed a vision, site plan, and made significant progress in the cleanup and development of the garden. Over the course of less than a year, the contaminated soil was isolated, the remaining soil was amended, utilities were installed, and the shed was made ready to house gardeners' tools for the next growing season.

In the summer of 2010, volunteers moved the top six inches of contaminated soil to the back of the site, where it was secured behind a fence for additional testing and cleanup. Some residual lead contamination remained across the planned garden areas, so volunteers brought in new compost and soil to replace the topsoil and provide a safe and fertile medium for gardening.

The contaminated soil was moved to the back of the site and will be the subject of further study to see if phytoremediation and composting can provide a safe on-site solution for lead contamination. The effort will involve researchers and students at Portland State University, who will study the concentrations and distribution of lead in the stockpiled soil, then develop a research design to study uptake by select plants, and the risks associated with composting those plants. The initial concept is to use plants to draw lead from the contaminated soil, then compost the plants until the lead concentrations in the compost are no higher than 50 parts per million.

This approach has multiple benefits. First, consolidating the contaminated soil at the rear of the site allows the rest of the site to be put into productive use as a community garden. Second, the phytoremediation study will serve as both an educational tool for elementary and middle school youth from the nearby King School, and a cleanup mechanism. The outcomes of this study will expand the state of knowledge about the fate and transport of low levels of lead in a garden setting. Finally, depending on the results from this project, the Emerson Street Garden could provide a model for other brownfields that can be cleaned up around the community and around the country.

reduce or eliminate stormwater runoff from the site. Rain barrels will capture additional runoff from the garden shed and provide free, on-site irrigation for the garden. Finally the garden features pervious gravel pathways, native plants and trees, and natural site barriers including stones and living screens.

Local youth will play a vital role in developing and using the garden. To honor past neighborhood leaders, young people will interview elders in the community and present those stories on the fence, kiosk, or in other areas throughout the site. This will help foster a sense of community ownership for the garden. The garden also will serve as an educational resource by integrating gardening activities with the science curricula of nearby schools and youth groups.

### Overcoming Contamination Hurdles

One of the most innovative ideas being implemented is how to clean up the lead contamination on the site.

## URBAN WATERS

Urban environments, particularly in underserved communities, are typically characterized by paved or covered “impervious” surfaces, working waterfronts with industrial facilities, abandoned industrial sites, and other underutilized or contaminated lands. These characteristics, in combination with aging and inadequate storm water management infrastructure, generate excess and untreated runoff that transports sewage and hazardous wastes into local water bodies. Urban patterns of historical development often make waterways inaccessible to adjacent neighborhoods. Lack of access to waterways limits the ability of communities to connect and participate in restoring waterways as healthy living ecosystems and reap the benefits of living close to the water in the city. Addressing these issues to ensure healthy and accessible urban waters can help grow local businesses and enhance educational, recreational and social opportunities in nearby communities.

EPA is learning from community efforts already underway and supporting communities as active participants in the restoration and protection of urban waters. EPA works to increase access to waterways, which promotes a sense of public ownership of water resources and integrates environmental goals with other pressing priorities like economic development, education, job creation, and greenspace creation and preservation.

### URBAN WATERS RESOURCES

[www.epa.gov/urbanwaters](http://www.epa.gov/urbanwaters)

#### **Watershed Planning and Management**

- Managing Wet Weather with Green Infrastructure - [cfpub.epa.gov/npdes/home.cfm?program\\_id=298](http://cfpub.epa.gov/npdes/home.cfm?program_id=298)
- Directory of EPA Watershed Publications - [water.epa.gov/type/watersheds/publications.cfm](http://water.epa.gov/type/watersheds/publications.cfm)
- Key EPA Water Internet Tools Course - [www.epa.gov/owow/watershed/wacademy/epatools](http://www.epa.gov/owow/watershed/wacademy/epatools)
- Watershed Central and Wiki - [wiki.epa.gov/watershed2](http://wiki.epa.gov/watershed2)

#### **Water Quality and Pollution Prevention**

- EPA Enforcement and Compliance History Online - [www.epa-echo.gov/echo](http://www.epa-echo.gov/echo)
- Nonpoint Source Pollution - [www.epa.gov/owow\\_keep/NPS/index.html](http://www.epa.gov/owow_keep/NPS/index.html)
- Water Quality Assessment Tools and Models - [water.epa.gov/scitech/datait/models/index.cfm](http://water.epa.gov/scitech/datait/models/index.cfm)

#### **Community Information**

- Groundwork USA - [www.groundworkusa.org](http://www.groundworkusa.org)
- National Park Service Rivers and Trails Program - [www.nps.gov/nrcr/programs/rtca](http://www.nps.gov/nrcr/programs/rtca)
- Adopt Your Watershed - [www.epa.gov/owow\\_keep/adopt/index.html](http://www.epa.gov/owow_keep/adopt/index.html)
- Community Culture and the Environment A Guide to Understanding a Sense of Place - [www.epa.gov/care/library/community\\_culture.pdf](http://www.epa.gov/care/library/community_culture.pdf)
- EPA Smart Growth - [www.epa.gov/smartgrowth](http://www.epa.gov/smartgrowth)
- Surf Your Watershed - [cfpub.epa.gov/surf/locate/index.cfm](http://cfpub.epa.gov/surf/locate/index.cfm)

#### **Outreach Development**

- Coastal Urban Waters Toolkit - [www.epa.gov/owow/oceans/debris](http://www.epa.gov/owow/oceans/debris)
- Getting In Step: A Guide for Conducting Watershed Outreach Campaigns - [www.epa.gov/owow/nps/toolbox/guide.htm](http://www.epa.gov/owow/nps/toolbox/guide.htm)
- Non-Point Source Toolbox - [www.epa.gov/nps/toolbox](http://www.epa.gov/nps/toolbox)

#### **Funding**

- Brownfields Grants to Support Assessment/Cleanup of Contaminated Property, Environmental Workforce Development and Job Training Grants, and Targeted Brownfields Assessments - [www.epa.gov/brownfields/grant\\_info/index.htm](http://www.epa.gov/brownfields/grant_info/index.htm)
- Catalog of Federal Funding Sources for Watershed Protection - [cfpub.epa.gov/fedfund](http://cfpub.epa.gov/fedfund)
- Sustainable Finance Website - [www.epa.gov/owow/funding/trainings.html](http://www.epa.gov/owow/funding/trainings.html)
- Watershed Funding Resource Directory - [water.epa.gov/aboutow/owow/funding.cfm](http://water.epa.gov/aboutow/owow/funding.cfm)

#### **Case Studies**

- Case Studies for Stormwater Management on Compacted, Contaminated Soils in Dense Urban Areas - [www.epa.gov/brownfields/tools/swcs0408.pdf](http://www.epa.gov/brownfields/tools/swcs0408.pdf)
- Urban Agriculture on Brownfields Website - [www.epa.gov/brownfields/urbanag](http://www.epa.gov/brownfields/urbanag)
- Targeted Watershed Grant Case Studies - [water.epa.gov/grants\\_funding/twg/initiative\\_index.cfm](http://water.epa.gov/grants_funding/twg/initiative_index.cfm)

For more information on the Emerson Street Project, and on other brownfields related Groundwork projects, contact Groundwork Portland at 503-662-2590, or visit the Groundwork Portland web site at: [www.groundworkportland.org/home.html](http://www.groundworkportland.org/home.html).