

Land Trust Feasibility Study

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Introduction

In just over a decade, urban greening has emerged as a promising strategy for addressing vacant properties in U.S. cities. Converting vacant lots into gardens, pocket parks, rain gardens and other forms of green infrastructure can transform once blighted properties into community assets. City-wide greening strategies can build resilience in the face of economic and environmental challenges, while improving the overall quality of life for residents.¹ Increasingly, cities are choosing to invest in urban greening programs rather than absorb the costs of maintaining and managing vacant land.

With more than 12,000 vacant lots across more than 1,500 acres St. Louis has an unprecedented opportunity to turn the challenge of vacant land into a neighborhood asset that would benefit the city for years to come. The city currently spends hundreds of thousands of dollars annually simply to clean and mow vacant lots while losing substantial tax revenue from the negative impact on surrounding property values. The direct costs of managing vacant properties alone make the return on investment for vacancy to green space conversion substantial.



Rain Garden, Philadelphia City Center

Successful examples of urban greening programs can now be found in every region of the country. City-wide programs are well established in a handful of cities such as Philadelphia, Cleveland, Detroit and Baltimore. Facing the burden of large vacant land inventories, these cities successfully used urban greening programs to reinvest in their neighborhoods. City-wide urban greening programs have become a multifaceted response to a wide range of urban problems, from stormwater management to food production.

Land trusts and other intermediary organizations play a crucial role in vacancy to green space conversion.² Historically, land trusts prioritized undeveloped land for conservation purposes. Today, however, these organizations engage in a variety of urban conservation efforts and participate in a number of urban greening programs. The purpose of this study is to assess the feasibility of using land trusts to promote vacancy to green space conversion in St. Louis. The

¹Schilling, J., & Logan, J. (2008). Greening the rust belt: A green infrastructure model for right sizing America's shrinking cities. *Journal of the American Planning Association*, 74(4), 451-466.

²Crauderueff, R. (2012). *Greening Vacant Lots: Planning and Implementation Strategies*. Natural Resources Defense Council.

sections that follow outline a preliminary model for St. Louis and the early steps for establishing an urban greening program focused on vacant properties.



STUDY BACKGROUND

In 2013, the city and several partners launched the Urban Vitality and Ecology Initiative with the goal of reconnecting people with nature. This effort resulted in new collaborations and an organized approach to urban greening. Some collaborations established pilot projects for converting vacant properties into public green space.

An outgrowth of this effort, the Green City Coalition (GCC), began building off of the work of pilot projects

established during the previous initiative. The coalition's goal was to address the challenge of vacant properties and inequitable access to quality outdoor spaces through urban greening. The coalition approached Washington University's Environmental Studies program in 2017 seeking advice about the possibility of a land trust to facilitate vacancy to green space conversion and commissioned a feasibility study to explore this possibility in more detail.

METHODS

Feasibility studies provide baseline information for determining the viability of a project or idea. Over the course of the past year, a team of researchers has compiled and analyzed data for this study. With advice from experts in professional and academic institutions, this study assesses whether and how a land trust for vacancy to green space conversion would operate in St. Louis. In conducting this analysis, the following methods were used:

- **National Best Practices Research**

Best practices research began by identifying vacancy conversion efforts nationwide by reviewing the academic and professional literature. Select cities with large land inventories were surveyed for detailed information on land trust operations. Follow up interviews with city officials and organizational representatives were conducted for cities where land trusts work active in urban greening.

- **Economic and Organizational Analysis**

To determine the costs, benefits and operation of a potential land trust in St. Louis. Data on local vacancy costs were provided by GCC and industry best practices were compiled to create a cost-benefit analysis for vacancy conversion as well as a projected

budget for land trust operations. This review also included an assessment of standards and practices for land trust operation, as well as best practices for managing greening programs.

- **Community Needs Alignment**

This study surveyed organizations working in the focus area for vacancy conversion and used data from participatory planning sessions to identify local concerns. The assessment also includes a review of the environmental justice and urban greening literature to layout a framework for equitable land trust operations.

CONTEXT

St. Louis fits the profile of other cities who have adopted large-scale urban greening solutions to vacant properties. These cities are generally older, former industrial cities that have experienced significant population loss and are now dealing with large vacant land inventories. Vacancy conversion in St. Louis is set against a backdrop of racial inequality and historical disinvestment in neighborhoods with high concentrations of vacant land. With significant pockets of green space inaccessibility, St. Louis would benefit from equitable vacancy conversion.



St. Louis has lost more than half its population since its peak in the 1950s and, like many other industrial cities, was devastated by the loss of manufacturing jobs. Between 1977 and 2012, the city of St. Louis lost more than two-thirds of its manufacturing jobs, falling from 92,600 to 17,422.³ The outmigration of residents and employment from the urban core has resulted in some of the nation's highest concentrations of poverty and racial segregation.⁴ Currently, St. Louis has a poverty rate of 26.7% and has historically ranked among the worst performers on measures of residential segregation like the dissimilarity index, a 0 to 100 scale where a score at 60 or above is considered highly segregated.⁵ St. Louis currently ranks among the more highly segregated cities in the country, with a score of 65.3. Deindustrialization, disinvestment, and population loss have left behind large quantities of vacant land (see Table 1).

³ Census of Manufacturers, U.S. Census.

⁴ Gordon, C. (2009). *Mapping decline: St. Louis and the fate of the American city*. University of Pennsylvania Press.

⁵ Massey, D. S., & Denton, N. A. (1993). *American apartheid: Segregation and the making of the underclass*. Harvard University Press.

Table 1. Population Loss, Segregation and Vacant Lots in Select Cities

City	Population Loss Since 1990	Dissimilarity Index (2010)	Poverty Rate	Vacant Lots (approx.)
Baltimore	120,271	68.9	21.8%	14,000
Cleveland	119,863	69	36%	12,000
Detroit	355,596	59.2	39.4%	90,000
St. Louis	83,948	65.3	26.7%	12,500

Source: *U.S. Census, American Communities Project, and select city agencies*

Environmental inequalities are a significant challenge for the city. St. Louis ranks among the most vulnerable in the Midwest to risks associated with climate change and rates second to last among the 27 North American cities reviewed by the Green City Index.⁶ Climate predictions project that heat waves and flooding associated with stormwater runoff are likely to present serious challenges for the city in coming years.⁷ Racial and income segregation make the city more vulnerable to these climate impacts. Low-income communities of color in St. Louis are closer to polluting facilities, disproportionately exposed to flooding and toxic air pollution, and more likely to host contaminated sites.⁸ Racial and economic disparities also limit healthy food access putting low-income communities of color at greater risk for obesity and chronic disease. More than a quarter of the city's population is food insecure.⁹ Like many industrial cities, accessible green space is a concern for St. Louis (see Table 2). While park space is generally accessible for the city as a whole, a number of neighborhoods have significant need for public green space in the Northwest and Southeastern portions of the city.¹⁰

⁶ Wilson, S. M., Richard, R., Joseph, L., & Williams, E. (2010). Climate change, environmental justice, and vulnerability: an exploratory spatial analysis. *Environmental Justice*, 3(1), 13-19; Unit, E. I., & Siemens, A. (2012). *The Green City Index*. Siemens AG.

⁷ Posey, J. (2014). Climate Change in St. Louis: Impacts and Adaptation Options. *International Journal of Climate Change: Impacts & Responses*, 5(2).

⁸ Abel, T. D. (2008). Skewed riskscape and environmental injustice: a case study of metropolitan St. Louis. *Environmental management*, 42(2), 232-248; Bullard, R. D. (2001). Environmental justice in the 21st century: Race still matters. *Phylon* (1960-), 49(3/4), 151-171.

⁹http://www.feedingamerica.org/research/map-the-meal-gap/2016/overall/MO_AllCounties_CDs_MMG_2016.pdf

¹⁰ See city profile at: http://parkscore.tpl.org/ReportImages/St.%20Louis_MO.pdf.

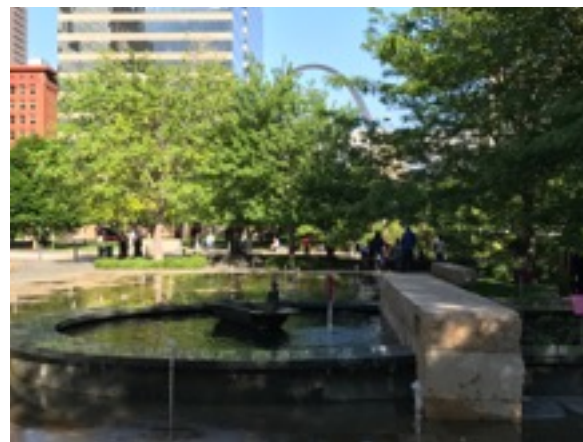
Table 2. Green City Index and Park Score in Select Cities

	Green City Index*	Park Score*
Baltimore	N/A	44.9
Cleveland	39.7	57.6
Detroit	28.4	33.6
St. Louis	35.1	69.2

Source: *Economic Intelligence Unit, Trust for Public Land Center for City Park Excellence*

*Scores from 0-100 where higher scores indicate better performance

Greening the city’s vacant lots could simultaneously address many of the urban problems noted above while enhancing environmental, social and economic resilience. Quality green spaces are neighborhood amenities that provide multiple benefits to surrounding communities. Decades of research demonstrate clear benefits from investing in trees, native plantings, community gardens and recreational green space. These benefits range from the reduction of air pollution, stormwater runoff, and the urban heat island effect to improved public health, community empowerment and psychological well-being.¹¹ Studies of converted vacant lots show notable benefits from property value increases, improved social capital, and even increased food security.¹² Greening vacant lots can also improve trust in community and political institutions. Photo experiments show that even moderate greening investments have a significant impact on an individual’s belief in community and confidence in their local government.¹³



Given the history of racial and economic disparities in the city, equitable approaches to urban greening will be necessary for maintaining the economic, social and environment benefits of vacancy conversion. Urban greening solutions must prioritize the needs of communities most adversely affected by vacancy and create avenues for

¹¹Erickson, D. (2012). *MetroGreen: Connecting open space in North American cities*. Island Press;Benedict, M. A., & McMahon, E. T. (2006). *Green infrastructure*. Island, Washington, DC.

¹²Heckert, M., & Mennis, J. (2012). The economic impact of greening urban vacant land: a spatial difference-in-differences analysis. *Environment and Planning A*, 44(12), 3010-3027; Branas, C. C., Cheney, R. A., MacDonald, J. M., Tam, V. W., Jackson, T. D., & Ten Have, T. R. (2011). A difference-in-differences analysis of health, safety, and greening vacant urban space. *American journal of epidemiology*, 174(11), 1296-1306;Kremer, P., Hamstead, Z. A., & McPhearson, T. (2013). A social-ecological assessment of vacant lots in New York City. *Landscape and Urban Planning*, 120, 218-233.

¹³ Center for Active Design, Assembly Civic Engagement Survey, accessible at: <https://centerforactivedesign.org/assembly-civic-engagement-survey>

meaning participation. The recommendations of this report emphasize the importance of equitable approaches to green space conversion.

Findings

The following sections provide an overview of the analysis conducted over the past year. The primary purpose of this study was to determine a viable model for a land trust that would convert vacant properties to green space. The findings represent an analysis of a nationwide sample of U.S. cities implementing urban greening approaches to vacant land. The findings also include considerations for land trust formation and a projected ten year budget for the land trust.

Approaches other than the land trust model received consideration for this study. A variety of organizations work on green space within urban settings. These include “friends of” groups as well as adopt a lot programs, such as garden lease programs or the Land Reutilization Authority’s “Mow to Own” program. Some of these alternative arrangements are quite extensive. Park Pride, for example, is a nonprofit organization that supports community-managed parks throughout the city of Atlanta. Despite some noteworthy features, the need for large-scale land acquisition makes the land trust model a preferred organizational approach for St. Louis.

LAND TRUST MODELS

Land trusts are nonprofit organizations that own rights to land for conservation and/or community use. In the United States, the land trust movement has a long history dating back to the 1800s. Land trusts have grown rapidly in number and amount of land conserved since the 1990s, when federal funding for state and local green space diminished.¹⁴ Protecting green space has long been popular, so much so that state and local ballot measures to fund green space regularly pass with overwhelming support.¹⁵

Land trust research has grown substantially in the last decade. Most studies recognize the need for comprehensive assessments that allow comparison across a variety of internal and external variables. Efforts like the Land Trust Census developed by the Land Trust Alliance and the surveys conducted by the National Community Land Trust Network and Lincoln Land Institute help provide a comprehensive picture of the land trust environment. Assessments of land trust efficacy most commonly use the case study approach. Numerous case studies of successful land trusts in urban environments were evaluated for this report. These studies identified successful approaches in contexts similar to those in St. Louis and follow up research was conducted to create a more detailed assessment of land trust operations. Land trusts in Baltimore, Buffalo, Cincinnati, Cleveland, Detroit, Memphis, Pittsburgh and Rochester were interviewed for this study. The land trust model proposed as a “best fit” for St. Louis reflect local concerns and on-the-ground conditions in addition to national best practices.

¹⁴Merenlender, A. M., Huntsinger, L., Guthey, G., & Fairfax, S. K. (2004). Land trusts and conservation easements: Who is conserving what for whom?. *Conservation Biology*, 18(1), 65-76.

¹⁵Lowry, W. R., & Scott Krummenacher, W. (2017). Coalitions and Conservation: Conditional Impacts of Coalitions on Ballot Measures for Open Space. *Review of Policy Research*, 34(3), 357-377.

Two basic types of land trusts exist in the United States: conservation land trusts and community land trusts. Conservation land trusts historically addressed open space preservation, while community land trusts emerged in the late 1960s to address concerns about affordable housing and community development in metropolitan areas. Variants and hybrid forms have recently emerged echoing earlier calls from researchers and practitioners for an integrated approach.¹⁶

Conservation Land Trusts

Over 1,300 land trusts work on conserving land in the United States.¹⁷ Conservation land trusts generally emphasize land acquisition for ecological purposes, such as biodiversity protection or the preservation of natural or historic landscapes, and adopt environmental values as part of their guiding mission. Protecting natural areas or wildlife habitat has been the top conservation priority in every land trust census conducted by the Land Trust Alliance. In the latest land trust census, 88% of trusts prioritized natural areas for conservation.¹⁸

These organizations vary greatly in size, duration and holdings. National land trusts have the largest holdings and account for more than half of all land conserved in the United States. The Nature Conservancy is the largest and owns millions of acres in the U.S. and internationally. State and local land trusts are more numerous and have grown substantially in the past few decades. In 2000, roughly 2.5 million acres were protected by state and local land trusts using conservation easements. By 2010, that number had increased to nearly 9 million acres.¹⁹ Most conservation land trusts work with private land owners to donate or sell partial or full interest in the land for preservation. Conservation land trusts either directly acquire land through purchase or donation or they use other legal agreements, such as easements, to preserve a property's natural state. They operate as tax-exempt nonprofit organizations with a governing board and executive staff. Most conservation land trusts have dues paying members and manage volunteers for various conservation projects. Often, these organizations include environmental education programming in their work.

Management and oversight of protected property is an ongoing challenge for these organizations. Accreditation by a professional organization such as the Land Trust Alliance is an important step. Accredited land trusts are much more likely to have full-time staff and other administrative resources for managing land acquired by the trust. In the latest land trust census, accredited land trusts had twice as many staff as non-accredited organizations.²⁰

¹⁶see, for example, Fairfax, S. K. et. al. (2005). Buying nature. MIT.

¹⁷2015 National Land Trust Census available at: <http://s3.amazonaws.com/landtrustalliance.org/2015NationalLandTrustCensusReport.pdf>

¹⁸2015 National Land Trust Census

¹⁹ National Conservation Easement Database

²⁰ 2015 National Land Trust Census

Until recently, most land acquisition by conservation land trusts occurred in undeveloped areas. Increasing concerns about sprawling development, environmental justice, and urban green space in the 1980s and 1990s shifted attention toward cities for at least some of these organizations. Rapidly growing metropolitan areas threatened to consume natural land on the urban fringe while disparities in access to green space within urban areas left many without access to nature. Conservation organizations have responded by working to preserve and create green space within urban environments. Land trusts are beginning to prioritize a range of urban needs related to these spaces such as food production and community engagement. Urban parks and gardens are now among the top ten conservation priorities reported by land trusts.²¹

Some land trusts are now focusing on community needs and interests in their conservation work. This people-oriented approach is often referred to as community conservation (see call out section).²² Community conservation is especially useful for urban green spaces because it allows land trusts to address conservation and community needs together. Green spaces acquired by a land trust, for example, may be managed by residents in the surrounding neighborhood or residents may play a significant role in shaping the character of the green space in their neighborhood. This model holds significant promise for vacancy conversion because it can be adapted to a range of urban needs and settings.

A number of successful examples of community conservation exist. Baltimore Green Space, for example, uses community conservation to manage multiple green spaces in Baltimore. Founded in 2007 to protect a community garden, the organization acquires green spaces in the city and allows communities to design, utilize and manage the land. The organization currently holds eleven sites under shared community management. These holdings include gardens, parks and other types of green space. Land acquisition is initiated by the community through a formal application process. The community conservation approach has been especially useful for addressing maintenance, since applications must include a maintenance plan and designate a site manager.²³ Baltimore Green space also pioneered agreements with the city to facilitate land acquisition. Some properties targeted by the organization have been acquired for one dollar through agreements with the Baltimore's Office of Sustainability.²⁴

According to the Land Trust Alliance, *community conservation* is:

1. An authentic, deliberate process that engages a diverse constituency in stating its shared values, needs and goals;
2. A continuum including outcomes that are as diverse as our communities;
3. Dependent on a rich understanding of people, place and history and the relationships between these;
4. Forward-looking, enhancing a community's capacity to be healthy and sustainable;
5. A form of engagement that serves the community and the land trust, making both stronger and more resilient.”

²¹ National Land Trust Census

²² www.landtrustalliance.org/topics/community-conservation

²³ Avins, M. (2015). The Land Trust Solution: How Baltimore Green Space Uses Land Ownership to Help Neighborhoods. *Cities and the Environment (CATE)*, 8(2), 17.

²⁴ Crauderueff, R. (2012). *Greening Vacant Lots: Planning and Implementation Strategies*. Natural Resources Defense Council.

Similarly, The Los Angeles Neighborhood Land Trust (LANLT) works to create parks and gardens in communities of color with little access to green space. Founded in 2002, the organization holds thirteen acres of parks and gardens across twenty seven sites, with plans for adding an additional fifteen acres next year. With the assistance of a university partner, the trust inventoried vacant lots and identified areas of green space need throughout Los Angeles. The trust includes staffing for programming and organizing. The organization is actively engaged in policy advocacy and promotes greater park investment in the city.

Community Land Trusts

Community land trusts address housing needs using many of the same land acquisition tools as conservation land trusts.²⁵ Most community land trusts are actively involved in development and divide ownership of the land between community and individuals through shared equity agreements.²⁶ Community land trusts own the land, while homeowners or other entities own the structures on the land. A key difference between conservation and community land trusts is that community land trusts focus on the people using the land, rather than preservation of the land itself. Often, homeowners receive support from the land trust and other service agencies to ensure the individual and community realize the full benefits of home ownership.²⁷ Overall, affordable housing and community development are key priorities for these organizations. In a recent survey of community land trusts, most (88%) mentioned housing and community development in their mission statements.²⁸

Over 200 community land trusts operate across 46 states and the District of Columbia.²⁹ Most operate at the county, city or neighborhood level, and often partner with other, related organizations like Habitat for Humanity.³⁰ Like conservation land trusts these organizations vary considerably in capacity and operations. Most organizations are small, with fewer than five full or part-time employees.³¹ A 2007 survey found a median staff size of one full-time employee for all community land trusts.³² Like conservation land trusts, community land trusts have governing

²⁵ Sungu-Eryilmaz, Y. and Greenstein, R. (2007). A National Study of Community Land Trusts. Lincoln Land Institute.

²⁶ Zonta, M. (2016). *Community Land Trusts: A Promising Tool for Expanding and Protecting Affordable Housing*. Center for Community Progress.

²⁷ Sungu-Eryilmaz, Y. and Greenstein, R. (2007). A National Study of Community Land Trusts. Lincoln Land Institute.

²⁸ CLT Network (2011). *The 2011 Comprehensive CLT Survey*., Zonta, M. (2016). *Community Land Trusts: A Promising Tool for Expanding and Protecting Affordable Housing*. Center for Community Progress.

²⁹ CLT Network (2011). *The 2011 Comprehensive CLT Survey*.

³⁰ Ibid.

³¹ Ibid.

³² Sungu-Eryilmaz, Y. and Greenstein, R. (2007). A National Study of Community Land Trusts. Lincoln Land Institute.

boards. Most follow the rule of thirds in board membership where at least 1/3rd of the board is comprised of leaseholders, 1/3rd community members living in the land trust service area, and 1/3rd public officials and other stakeholders with an interest in the work of the community land trust.³³ Many community land trusts have organizational memberships and members may elect representatives to the board (see Box 2 for more characteristics³⁴).

One of the most well-known community development initiatives in the U.S. is the Dudley Street Neighborhood Initiative (DSNI) in Boston, Massachusetts. DSNI created Dudley Neighbors, Inc., in 1984 to serve as the land trust for affordable housing and open space in the neighborhood. With support from the city, DNI developed more than 30 acres of vacant land into 255 new, affordable homes along with a community greenhouse, urban farm, and playground.³⁵

Land acquired by community land trusts typically includes affordable housing, but can also include commercial spaces for nonprofit offices, community centers and homeless shelters. Some community land trusts are involved in land conservation, though holdings tend to be small. In addition to acquiring land for affordable housing, Charm City Land Trust in Baltimore acquired and greened nineteen vacant parcels that serve as the primary green space within the land trust's service neighborhood.

John Davis, cofounder of Burlington Associates in Community Development, lists ten characteristics of community land trusts:

1. **Nonprofit, tax-exempt status** - maintain 501(c)(3) designation
2. **Dual ownership** - owns land and sells the structure
3. **Leased land** - land use is granted through long-term ground leases
4. **Perpetual affordability** - commitment to maintaining affordability
5. **Perpetual responsibility** - commitment to responsible ownership or use of land/building
6. **Open, place-based membership** - membership is available to all residents in a service area
7. **Community control** - members elect 2/3rds of the board
8. **Tripartite governance** - board of directors comprised of 1/3rd of those leasing land, 1/3rd residents in service area, 1/3rd public stakeholders
9. **Expansionist program** - commitment to acquisition and development of affordable housing and other structures
10. **Flexible development** - may pursue development internally or through partnerships and may develop many types of housing

³³Zonta, M. (2016). *Community Land Trusts: A Promising Tool for Expanding and Protecting Affordable Housing*. Center for Community Progress.

³⁴ quoted in Davis, J. and Jacobus, R. (2008). *The City-CLT Partnership: Municipal Support for Community Land Trusts*. Lincoln Land Institute.

³⁵ www.dudleyneighbors.org/background.html, accessed August 6, 2018.

Hybrid Approaches and Proposed Land Trust Model

Despite different priorities, both conservation and community land trusts are transforming vacant lots by creating community-serving green space. Acquiring land and preserving its character or affordability were significant tools for vacancy transformation. Increasingly, these interests overlap and lead to both formal and informal collaborations between land trusts and other organizations.

The flexibility offered by nonprofit land trusts can build bridges to address multiple vacancy challenges at once. Working collaboratively, land trusts can add public value through their work while supporting city-wide goals for vacancy reuse. In our assessment of urban land trusts, informal partnerships³⁶ were common and formal partnerships between land trusts, municipalities and other entities existed in most cities. Agreements between municipalities and land trusts to transfer or donate vacant lots for conversion helped spur mutually beneficial green space conversions in a number of cases.

Land trusts working on vacancy conversion also played active roles in community development through programming, education and training and other reinvestment practices. Particularly innovative programs leveraged vacancy to green space conversions in ways that created direct investments in underserved communities. People United for Sustainable Housing (PUSH) in Buffalo, New York, for example, developed an extensive jobs program focused on green infrastructure to convert 221 vacant parcels to rain gardens in addition to green housing and park development.³⁷

Based on an assessment of national best practices, an in-depth review of land trust activities working in specific cities, and an assessment of the local context, the study proposes the adoption of a land trust with the following characteristics:

• Pursue Nonprofit, 501(c)(3) Status and Land Trust Accreditation

As a tax exempt nonprofit, the trust can acquire and hold land and other assets while remaining exempt from relevant taxes and provide liability protection to a governing board. Nonprofit, 501(c)(3) status is the most common legal structure for land trusts in the U.S.

Land trust accreditation was also an important factor for the long-term success of land trusts. Accredited trusts performed better than non-accredited land trusts on longevity, land holdings and community engagement.

³⁶ defined here as intentional coordination between a land trust and other organizations without a formal, written agreement.

³⁷ Hart, S. and Magavern, S. (2017). *PUSH Buffalo's Green Development Zone: a Model for New Economy Community Development*. Partnership for the Public Good.

- **Tripartite Governance**

Adopt an organizational structure with a governing board similar to community land trusts and hire full-time professional staff. A governing board provides guidance and resources for the land trust and adopting the rule of thirds would allow broad representation. The proposed board composition would include 1/3rd community representatives (preferably residing near greened vacant lots), 1/3rd stakeholders from the broader service area, and 1/3rd representatives from partner organizations or public officials. Board members would be chosen for fixed terms and can be elected by organizational members. Representation from partner organizations was identified as a useful feature for governing boards. In Madison, Wisconsin, for example, directors from the Madison Area Community Land Trust (MACLT) and the Urban Open Space Foundation sit on each others boards.

- **Employ Professional Staff, Rather Than Rely on Volunteers**

Professional staff are also important for maintaining service quality and guaranteeing continuity in operations. In surveys of both conservation and community land trusts, having professional staff allowed the trust to better meet conservation and community needs. At minimum, the trust will need an executive director, program manager and administrative coordinator. The trust will also need to contract for legal and accounting services. Part-time and volunteer staff can supplement, but not replace this work.

- **Develop Community Green Space and Affordable Housing**

Green spaces created by the land trust should engage the community early and often. Engagement was noted as important to the success of many urban land trusts, especially those working in underserved communities. Green spaces should reflect the preferences of residents as well as possible.

The land trust should also pursue affordable housing and other development options as part of its work. Though affordable housing and other forms of development can be an expensive endeavor for the trust, phasing in the ability to do development work either in-house or through partnership will allow the trust to maximize the economic and social benefits of greening. Even some conservation land trusts are encouraging development when it makes sense and can generate supporting revenue for the organization.

- **Adopt a City-County Service Area**

The challenges associated with vacancy are not confined to city boundaries and it is recommended that the land trust work in both St. Louis City and St. Louis County. Vacancy issues such as crime, foreclosures and illegal dumping can easily spill over across political jurisdictions. By working across jurisdictional boundaries, the land trust can address these concerns.

- **Support Community Ownership or Management**

Creating green spaces with the support of residents and community based organizations ensures that uses for the site address community needs. Where appropriate, the land trust should work with residents and community-based organizations to manage newly created green spaces. An approach similar to Baltimore Green Space, with a formal application and management plan, is recommended. The trust may also turn green spaces over to community organizations where it is appropriate

- **Provide Green Skills Through Training and Education**

Many land trusts (in our survey more than half) provide educational programming and green jobs training as part of their work. Creating parks, rain gardens and other forms of green infrastructure can provide good paying jobs to those with proper training. The proposed land trust should consider phasing in training and other educational programs as part of its work. Training and job opportunities should be made available to residents to ensure they receive economic benefits from greening projects.

- **Partner with City and County Government**

Successful urban greening efforts in select cities for this study used agreements between land trusts and city government to facilitate vacancy conversion. Partnerships in cities with robust vacancy to green space programs have allowed both parties to identify properties suitable for transfer or donation to the land trust. Where possible, the land trust should pursue formal public/private partnership. Formal arrangements between city and land trusts provide support and stability for greening efforts.

- **Collaborate or Partner with Complimentary Organizations**

All cities reviewed for this report had networks of organizations working to convert vacant property to green space. The most successful programs, however, had strategic collaborations that furthered the mission of each organization.³⁸ Urban land trusts regularly partnered with community based organizations, cultural institutions, social service providers and other environmental nonprofits to develop and program parks, community gardens and other green spaces. These collaborations produced a multifunctional green spaces that were culturally appropriate and reinforced the many benefits provided by urban green space. The proposed land trust can serve as the lead organization on vacancy conversion and capitalize on a broader network of organizations engaged in vacancy work.

- **Engage in Policy Advocacy**

Advocating for supportive policies for green space conversion is a common practice for urban land trusts. Often, policy advocacy went beyond vacancy conversion to address a range of community development issues. Many land trusts were active in policy at the state level, as well.

³⁸ Briechele, K. (2006). *Conservation-Based Affordable Housing*. The Conservation Fund.

Policy advocacy at the state level is likely to be important for the trust’s work, as state law governs elements of property dispensation by the Land Reutilization Authority.

These ten characteristics offer a framework for a proposed land trust working on vacancy to green space conversion in St. Louis. Not all characteristics are essential and one or more elements can be phased in as the land trust matures. Adopting all ten features, however, will help maximize the benefits of green space conversion. Table 3 summarizes features of the proposed land trust in relationship to other land trust types.

Table 3. Features of Current and Proposed Land Trust Models

Features	Traditional Conservation Land Trust	Community Conservation Land Trust	Community Land Trust	Proposed Land Trust Model
Land Ownership/Stewardship	Acquires land to hold in perpetuity, Acquires easements to restrict development activity.	Acquires land to hold in perpetuity, Acquires easements to restrict development activity. Develops community-owned and managed green spaces.	Acquires land to hold in perpetuity and conveyed under long-term ground leases. Develops community-owned and managed green spaces.	Acquires land to hold in perpetuity, possible conveyance, especially with partnership. Develops community-owned and/or managed green spaces.
Housing/Built Environment	Primarily manages natural areas.	Integrates green space conservation activities into the built environment.	Primarily focuses on affordable housing. Some efforts to develop community-owned and managed green spaces.	Integrates green space conservation into surrounding built environment and addresses affordable housing needs.
Service Area	Serves any geographic area specified by the organization. Predominantly rural or suburban.	Serves any geographic area specified by the organization. Predominantly suburban or urban.	Serves any geographic area specified by the organization. Predominantly urban.	Regional service area that is urban and possibly suburban where there are significant concerns about vacancy.
Organization	Private, nonprofit organization.	Private, nonprofit organization	Private, nonprofit organization that is not sponsored by a for-profit organization and has no more than 1/3 of its board comprised of local government officials.	Private, nonprofit organization with possible partnership agreements with other public and private organizations.
Administration	Professional staff, volunteer staff	Few professional staff, volunteer staff	Few formal staff, primarily volunteer staff	Professional staff, volunteer staff

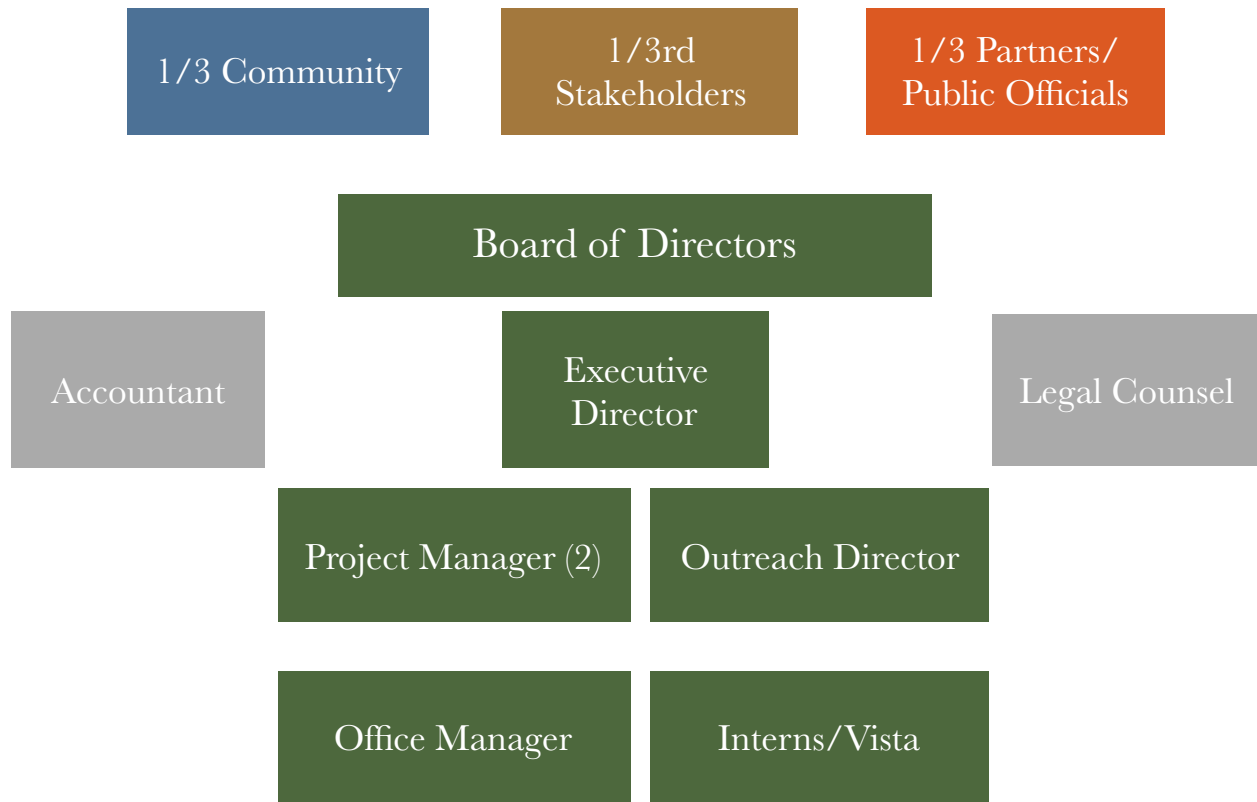
Table 3. Features of Current and Proposed Land Trust Models

Features	Traditional Conservation Land Trust	Community Conservation Land Trust	Community Land Trust	Proposed Land Trust Model
Relationship to City	Generally does not enter into agreements with city.	Primarily informal, some formal agreements	Formal agreements and sponsorship	Formal partnership
Collaborations/ Partnerships	Numerous collaborations and formal partnerships with other environmental organizations. Works with private landowners.	Numerous collaborations and formal partnerships with a diverse range of organizations.	Partnerships and collaborations with community development and service organizations.	Form partnerships with groups working in environmental stewardship and community development. Lead organization for vacancy conversion.
Training and Education	Environmental education and stewardship. Training in conservation field work.	Environmental education and stewardship. Job/skills training in urban greening fields.	Job/skills training, Homeownership education.	Job/skills training, community economic development, environmental stewardship and education.
Policy Advocacy	Promote conservation priorities at national/state/local levels.	Promote conservation and community development priorities at local level.	Promote community development and housing priorities at local level.	Promote conservation and community development priorities at state and local levels.

Organizational Structure and Budget

The proposed land trust model will require a governing board, professional staff and supportive services by outside professionals. Board composition would allow residents, organizational representatives and public officials to provide expertise to the organization. An assessment of land trust organizational structures shows that the median accredited land trust maintains a full-time staff of five employees.³⁹ Under the proposed model, the land trust would have an executive director, an outreach director, two project managers, and an office manager. An executive director is essential for leadership and strategic direction for the land trust. An outreach director was commonly found in urban land trusts adopting a similar approach to the proposed model. Outreach directors in similar organizations engaged community organizations, organized volunteers and served other community development functions in the land trust service area. Project managers (or project planners) are vital for developing and implementing greening efforts. The proposed model for a land trust would be phased in over the course of ten years and ultimately be structured as follows:

³⁹ 2015 Land Trust Census.



This organizational structure would provide the capacity to plan, implement and manage holdings of up to 400 acres of converted green space. In addition to assessing staffing and organizational structure, this study incorporated a review of annual budgets for urban land trusts with various holdings. The study was able to identify expense categories and necessary revenue for the proposed land trust model at holdings of 100, 200, 300, and 400 acres. In addition to assessing financial documents of urban land trusts, the study used the Land Trust Alliance (LTA)'s *2017 Land Trust Salary Survey Report* to develop estimated staff expenses and the LTA's *2017 Standards and Practices: Ethical and Technical Operational Guidelines for the Responsible Operation of Land Trusts* to inform projected revenue.

Revenue was diversified across multiple categories, in accordance with land trust best practices.⁴⁰ Donations include expected individual contributions from fund raising appeals and other campaigns. Many urban land trusts have established relationships with large private donors that support their work. Grants are also expected to provide significant support for the proposed land trusts. Grants include government grants (federal, state, and local) as well as private (foundations and other nongovernmental entities). Because the proposed land trust is developing park-like

⁴⁰ Land Trust Alliance. (2017). *Standards and Practices: Ethical and Technical Operation Guidelines for the Responsible Operation of Land Trusts*.

green space, memberships are considered another appropriate revenue stream to fund the organization. Events and programs were also key to the success of many urban land trusts and are expected to generate significant income. Finally, significant contributions to the proposed land trust are expected from the in-kind contributions of strategic partners (such as the city donating vacant land), investment income from an established endowment, and other external financing measures. In land trusts surveyed for this report, this category provided significant revenue.

Expenses were estimated by benchmarking urban land trusts working to convert vacant properties to green space and looking at similar organizations working on green space in urban settings (such as urban park conservancies). Operational expenses include salary and benefit costs for staff, contracted legal and financial services, and facilities costs. Operating expenses were benchmarked with national surveys conducted by the National Recreation and Park Association.⁴¹ Programming expenses include training and public engagements, along with expenses for fundraising and travel. Acquisition costs include purchasing and clearing land. Conversion costs include transformation of parcels into green space amenities. Maintenance costs include regular landscape maintenance for native plantings and other green space features.

The sample budget makes several assumptions about revenues and expenses for the proposed land trust model. First, it is assumed that GCC partners will contribute at least some in-kind support for vacancy acquisition and conversion projects. The assumption, however, is that the contribution will be limited - land donations or shared deconstruction costs for portions of the land trust service area, for example. Secondly, the sample budget assumes an endowment significant enough to fund maintenance and related costs. It is anticipated that the endowment would be capable of developing other external financing options for the trust. Finally, revenues and expenses related to affordable housing are not included in the budget as they are expected to develop after a ten year timespan for the proposed land trust. It is expected that the trust will primarily address vacancy conversion in the ten year phase and begin pursuing affordable housing after conversion projects have been established in the prioritization area.

⁴¹ see the NRPA research portal at: <https://www.nrpa.org/publications-research/>

Table 4. Sample Operating Budget

Item	100 Acres	200 Acres	300 Acres	400 Acres
Revenue				
Donations	\$ 200,000.00	\$ 200,000.00	\$ 250,000.00	\$ 250,000.00
Grants (Government & Private)	\$ 500,000.00	\$ 500,000.00	\$ 500,000.00	\$ 500,000.00
Membership Fees	\$ 100,000.00	\$ 100,000.00	\$ 125,000.00	\$ 125,000.00
Events	\$ 150,000.00	\$ 150,000.00	\$ 150,000.00	\$ 150,000.00
Programs	\$ 175,000.00	\$ 175,000.00	\$ 200,000.00	\$ 200,000.00
In-kind Contributions/ Investment Income/External Financing	\$ 1,750,000.00	\$ 1,950,000.00	\$ 2,000,000.00	\$ 2,100,000.00
Other	\$ 50,000.00	\$ 50,000.00	\$ 50,000.00	\$ 50,000.00
Total Revenue	\$ 2,925,000.00	\$ 3,125,000.00	\$ 3,275,000.00	\$ 3,375,000.00
Operating Expenses				
<u>Staff</u>				
Executive Director	\$ 80,000.00	\$ 85,000.00	\$ 90,000.00	\$ 90,000.00
Outreach Director	\$ 55,000.00	\$ 55,000.00	\$ 60,000.00	\$ 60,000.00
Project Manager	\$ 45,000.00	\$ 90,000.00	\$ 100,000.00	\$ 100,000.00
Office Manager	\$ 35,000.00	\$ 35,000.00	\$ 40,000.00	\$ 40,000.00
Part-time Staff	\$ 15,000.00	\$ 15,000.00	\$ 15,000.00	\$ 15,000.00
Fringe Benefits	\$ 69,000.00	\$ 84,000.00	\$ 91,500.00	\$ 91,500.00
Professional Services	\$ 100,000.00	\$ 125,000.00	\$ 150,000.00	\$ 150,000.00
Total	\$ 399,000.00	\$ 489,000.00	\$ 546,500.00	\$ 546,500.00
<u>Facilities</u>				
Rent	\$ 150,000.00	\$ 150,000.00	\$ 150,000.00	\$ 150,000.00
Maintenance/Cleaning	\$ 20,000.00	\$ 20,000.00	\$ 20,000.00	\$ 20,000.00
Total	\$ 170,000.00	\$ 170,000.00	\$ 170,000.00	\$ 170,000.00
Programming Expenses				
Training/Education	\$ 50,000.00	\$ 100,000.00	\$ 150,000.00	\$ 200,000.00
Public Engagement ¹	\$ 50,000.00	\$ 50,000.00	\$ 50,000.00	\$ 50,000.00
Fundraising Expenses	\$ 50,000.00	\$ 75,000.00	\$ 75,000.00	\$ 75,000.00
Travel Expenses	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00
Total	\$ 160,000.00	\$ 235,000.00	\$ 285,000.00	\$ 335,000.00

Table 4. Sample Operating Budget

Item	100 Acres	200 Acres	300 Acres	400 Acres
Acquisition, Conversion & Maintenance				
Land Acquisition	\$ 1,500,000.00	\$ 1,500,000.00	\$1,500,000.00	\$ 1,500,000.00
Conversion	\$ 540,000.00	\$ 540,000.00	\$ 540,000.00	\$ 540,000.00
Maintenance	\$ 50,000.00	\$ 100,000.00	\$ 150,000.00	\$ 200,000.00
Total	\$ 2,090,000.00	\$ 2,140,000.00	\$2,190,000.00	\$ 2,240,000.00
Other				
Office Expenses	\$ 50,000.00	\$ 50,000.00	\$ 55,000.00	\$ 60,000.00
Project Expenses	\$ 20,000.00	\$ 20,000.00	\$ 20,000.00	\$ 20,000.00
Total	\$ 70,000.00	\$ 70,000.00	\$ 75,000.00	\$ 80,000.00
Total Revenue	\$ 2,925,000.00	\$ 3,125,000.00	\$3,275,000.00	\$ 3,375,000.00
Total Expenses	\$ 2,889,000.00	\$ 3,104,000.00	\$3,266,500.00	\$ 3,371,500.00

COSTS AND BENEFITS FOR VACANCY CONVERSION

The costs and benefits of vacancy conversion are important considerations for the proposed land trust. Vacancy is a well known disamenity with considerable negative impacts for the host neighborhood. Green space has long been recognized as a neighborhood amenity, enhancing the host neighborhood with a variety of beneficial effects. This study assessed the potential costs and benefits of vacancy conversion. This section outlines the costs and benefits and projects a per parcel value for conversion along with a benefit to cost ratio for vacancy conversion. Vacancy conversion is projected to provide substantially more benefits than costs and represents a valuable investment for GCC.

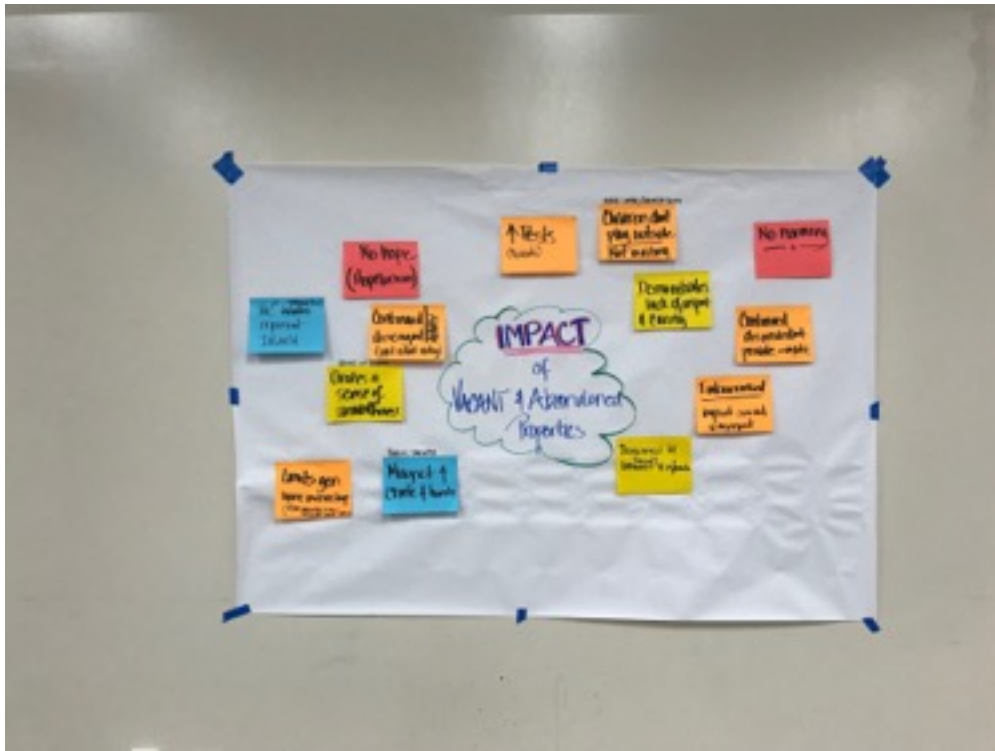
Vacancy Costs

The negative impacts of vacancy have been well studied. Surrounding properties bear substantial costs including loss of property value, increased crime and foreclosures, negative impacts on public health, and more.⁴² Some costs are less tangible, such as impacts on mental health,

⁴²Immergluck, D. (2016). The cost of vacant and blighted properties in Atlanta: A conservative analysis of service and spillover costs. Center for Community Progress.; Keating, W. D. (2010). Redevelopment of vacant land in the blighted neighbourhoods of Cleveland, Ohio, resulting from the housing foreclosure crisis. *Journal of Urban Regeneration & Renewal*, 4(1), 39-52.; Cui, L., & Walsh, R. (2015). Foreclosure, vacancy and crime. *Journal of Urban Economics*, 87, 72-84.; Branas, C. C., Cheney, R. A., MacDonald, J. M., Tam, V. W., Jackson, T. D., & Ten Have, T. R. (2011). A difference-in-differences analysis of health, safety, and greening vacant urban space. *American journal of epidemiology*, 174(11), 1296-1306.

neighborhood perception and overall quality of life.⁴³ Neighborhoods with concentrations of vacant properties are particularly at risk and likely to experience multiple impacts.

Municipalities bear the burden of administering these properties and addressing their associated impacts. Municipalities bear the direct costs of maintaining the property (regularly mowing or removing debris, for example). But vacant properties also become sites for other illegal activities that consume municipal resources. Illegal dumping, for example, is common on vacant properties and featured by a number of recent stories in the St. Louis Post-Dispatch.⁴⁴



The costs of vacancy to municipalities can be substantial. GCC provided data on costs for this analysis. Included in these costs were the following:

- Maintenance Costs
- Costs to City Departments for Services
- Administrative Costs (Legal and Organizational)

These costs amounted to a total of \$66,926,100 or \$2699 per vacant parcel. The City had previously estimated the property value loss at \$138,467,909.32 or \$5583.38 per parcel and estimated the loss of property tax revenue from vacancy’s impact at \$7,703,407.46 or \$310.62 per parcel. Table 5 summarizes these costs and provides detail by category.

⁴³Garvin, E., Branas, C., Keddem, S., Sellman, J., & Cannuscio, C. (2013). More than just an eyesore: local insights and solutions on vacant land and urban health. *Journal of Urban Health*, 90(3), 412-426.

⁴⁴ Bot, C. and O’Dea, J. (Aug. 19, 2018) Tipping point: St. Louis residents, fed up with city’s dumping problem, want action. *St. Louis Post-Dispatch*. and Moore, D. (Aug. 22, 2018). Caught on camera: Look who the city nailed when it went after illegal dumpers. *St. Louis Post-Dispatch*.

Table 5. Vacancy Costs

Cost Category	Total Cost	Cost Per Parcel
Maintenance	\$8,428,114	\$339.84
Services	\$57,470,044.00	\$2,308.51
Administration	\$1,027,942.00	\$41.45
Property Value Loss	\$138,467,909.32	\$5,583.38
Property Tax Loss	\$7,703,407.46	\$310.62
Total	\$213,097,416.78	\$8,583.80

Conversion Benefits and Costs

Urban greening provides multiple benefits to the host neighborhood and these benefits often extend beyond neighborhood borders. Urban greening’s benefits are well-studied, with early research on the impact of parks dating back to the early 1900s. The benefits (and costs) associated with urban greening vary by type (e.g. park, garden, street trees, etc.) but substantial evidence shows that benefits exceed the costs in most cases.⁴⁵ Most commonly, greening is associated with increased property values. An emerging literature on ecosystem services, however, shows that green spaces do much more than add value to property. Rather, these spaces have other quantifiable benefits that range from mitigating urban heat islands, managing stormwater, reducing air pollution and storing carbon.⁴⁶ Green spaces also show beneficial health effects through increased physical activity and lower obesity rates.⁴⁷

Established programs in cities like Philadelphia allow researchers to study the long term impacts of greening across the city.⁴⁸ Researchers are able to compare converted vacant properties to

⁴⁵ Crompton, J. L. (2001). The impact of parks on property values: A review of the empirical evidence. *Journal of leisure research*, 33(1), 1-31. Wachter, Susan M. and Grace Wong, 2008. "What Is a Tree Worth? Green-City Strategies, Signaling and Housing Prices," *Real Estate Economics*, American Real Estate and Urban Economics Association, vol. 36(2), 213-239, 06; Ioan Voicu and Vicki Been, 2008. "The Effect of Community Gardens on Neighboring Property Values," *Real Estate Economics*, American Real Estate and Urban Economics Association, vol. 36(2), 241-283

⁴⁶Bowler, D. E., Buyung-Ali, L., Knight, T. M., & Pullin, A. S. (2010). Urban greening to cool towns and cities: A systematic review of the empirical evidence. *Landscape and urban planning*, 97(3), 147-155;Berland, A., Shiflett, S. A., Shuster, W. D., Garmestani, A. S., Goddard, H. C., Herrmann, D. L., & Hopton, M. E. (2017). The role of trees in urban stormwater management. *Landscape and Urban Planning*, 162, 167-177; Nowak, D. J., Crane, D. E., & Stevens, J. C. (2006). Air pollution removal by urban trees and shrubs in the United States. *Urban forestry & urban greening*, 4(3-4), 115-123; Nowak, D. J., Greenfield, E. J., Hoehn, R. E., & Lapoint, E. (2013). Carbon storage and sequestration by trees in urban and community areas of the United States. *Environmental pollution*, 178, 229-236.

⁴⁷Lee, A. C., & Maheswaran, R. (2011). The health benefits of urban green spaces: a review of the evidence. *Journal of public health*, 33(2), 212-222.

⁴⁸Wachter, S. (2004). *The Determinants of Neighborhood Transformation in Philadelphia: Identification and Analysis: The New Kensington Pilot Study*. University of Pennsylvania, Wharton School.

areas where vacant properties remain. Because vacancy conversion has yet to be developed through the proposed land trust, benefits and costs must be estimated using the existing literature and, where available, specific cost-benefit data relevant to St. Louis. This study draws upon a well-established literature to identify the following benefits for use in the analysis: property values, property tax revenue, reduced heat island effect, air pollution reduction and carbon sequestration. Also included as benefits for conversion are the vacancy costs avoided by conversion. Costs for conversion are estimated to include acquisition, planning/implementation, maintenance and administration. Table 6 and 7 outline estimated conversion benefits and costs.

Benefits

• **Property Values and Property Tax Revenue**

Property values were estimated by reviewing literature for urban greening impacts in cities comparable to St. Louis. From this analysis, expected property value increases of 5%-7% could be projected for vacancy conversion. This analysis uses the most conservative estimates and adopted the 5% metric across an average of four properties per converted parcel. Housing values were taken from existing data in the neighborhoods with concentrations of properties prioritized by GCC. Premium increases were then applied to expected increases in property tax revenue.

• **Public Health**

Obesity and chronic disease are often associated with lack of green space. Studies find higher body mass index (BMI) and rates of chronic disease among households that lack access to green space.⁴⁹ Studies identify substantial costs associated with obesity and chronic disease. Obesity alone costs \$1,723 per person.⁵⁰ Benefits assume four households adjacent to the parcel with an average household size of 2.49 and a 10% reduction in obesity from greening.

• **Heat Island Mitigation**

Urban greening has been shown to reduce the urban heat island effect and lower energy costs. Urban trees can lower temperatures by approximately 1-5 degree fahrenheit in residential neighborhoods.⁵¹ Economic benefits from lower energy costs vary, with estimates averaging \$156 per acre of green space. This analysis adopts a conservative estimate of \$100 per parcel.

⁴⁹Frank, L. D., & Engelke, P. O. (2001). The built environment and human activity patterns: exploring the impacts of urban form on public health. *Journal of planning literature*, 16(2), 202-218.; Lopez, R. P., & Hynes, H. P. (2006). Obesity, physical activity, and the urban environment: public health research needs. *Environmental Health*, 5(1), 25; Lachowycz, K., & Jones, A. P. (2011). Greenspace and obesity: a systematic review of the evidence. *Obesity reviews*, 12(5), e183-e189.

⁵⁰Tsai, A. G., Williamson, D. F., & Glick, H. A. (2011). Direct medical cost of overweight and obesity in the United States: a quantitative systematic review. *Obesity Reviews: An Official Journal of the International Association for the Study of Obesity*, 12(1), 50-61.

⁵¹Ellis, K. N., Hathaway, J. M., Mason, L. R., Howe, D. A., Epps, T. H., & Brown, V. M. (2017). Summer temperature variability across four urban neighborhoods in Knoxville, Tennessee, USA. *Theoretical and Applied Climatology*, 127(3-4), 701-710.

• Air Pollution Mitigation

Urban greening can mitigate air pollution as pollutants are absorbed by vegetation. Trees have received the most study in the literature, with estimated benefit as high as \$28 per tree, though some studies show air pollution mitigation benefits from other plants and grasses.⁵² Greening may contribute pollutants (biogenic volatile organic compounds), but most studies show a net decrease with widespread urban greening. Estimates used for this approach are \$30 per parcel.

• Carbon Sequestration

Biomass from greened spaces provides carbon sequestration. These benefits are significant if the greened parcel uses tree plantings and other plants with significant potential for carbon storage. Studies of urban greening and carbon sequestration show a benefit as high as \$13 per tree. Assuming minimal tree planting on converted parcels, a \$10 benefit per parcel was applied.

Table 6. Estimated Benefits

Benefit Type	Estimated Per Parcel Benefit
Property Value Increase	\$21,555.83
Avoided Vacancy Costs	\$2,349.96
Property Tax Revenue	\$1,784.82
Public Health	\$1,723.00
Heat Island Mitigation	\$100.00
Air Pollution Mitigation	\$30.00
Carbon Sequestration	\$10.00
Total	\$27,553.61

Costs of Conversion

Converting vacant properties into quality green space can be expensive. According to this analysis, 400 acres of converted green space would cost several million dollars. Conversion costs include expenses for land acquisition along with planning and implementing green space. High quality green spaces must also be maintained or they will once again become a neighborhood disamenity. As with vacant properties, administrative costs are associated with property management and development.

⁵²Yang, J., Yu, Q., & Gong, P. (2008). Quantifying air pollution removal by green roofs in Chicago. *Atmospheric environment*, 42(31), 7266-7273.

Conversion expenses were drawn from Reimanging Cleveland’s Resource Book and applied to this analysis. Conversion estimates range from \$3,000 to \$6,000 per .9 acres of converted green space. This analysis assumes the conversion of the parcel to a maintained green space with minimal development. Conversion to park space is not included in the analysis and would represent substantially more development costs. This analysis adopts the most conservative estimate of costs for conversion outlined in the Resource Book of \$6,000 per parcel (rather than per .9 acre) and includes additional costs for demolition. Demolition costs are estimated at \$8,500 per deconstructed structure and averaged across parcels (prioritized GCC parcels include those with and without structures). Programming costs for the green space are not included in this analysis.

Some costs are carried over from the vacancy cost data provided by GCC. The analysis incorporates the maintenance costs used for vacancy as a high-end estimate of maintenance costs for greened parcels. Native plantings, for example, project lower maintenance costs (roughly \$200 per acre for native prairie, \$200 per 1,000 sq. ft. for ground cover)⁵³, but a higher cost estimate is used to ensure a more conservative estimate. Administrative costs are also held constant from the vacancy data provided above. Table 7 outlines cost estimates.

Cost Type	Estimated Per Parcel Costs
Conversion	\$12,375.00
Maintenance	\$339.84
Administrative	\$41.45
Total	\$12,756.29

A comparison of the benefits and costs show a substantial overall benefit for conversion. Benefits exceed the costs by a ratio of more than 2 to 1 (2.16:1.00). Factoring in intangible benefits and costs (such as neighborhood or city perception, mental health, etc.) would likely show more benefit. Benefits to the city are substantial. Costs for conversion, maintenance, and administration are born by the proposed land trust. The transfer of significant vacancy costs to the proposed land trust alleviates a substantial burden while allowing future development on other vacant properties.

⁵³<https://www.missouribotanicalgarden.org/Portals/0/Shaw%20Nature%20Reserve/PDFs/horticulture/NLM%20Ch4.pdf>

COMMUNITY NEEDS ALIGNMENT

Community residents and organizations should play an active role in the conversion of vacant properties. The proposed land trust model adopts a community conservation approach that allows residents and community based organizations to guide greening efforts. Community involvement in the early stages of vacancy conversion can ensure that resident needs are incorporated into projects and that they receive the primary benefits of the green space conversion. To better understand the alignment of community needs to green space conversion, this study analyzed data from workshops, visioning sessions, participatory planning sessions and surveys to community organizations in the proposed land trust service area.



Identifying Needs & Priorities

Identifying and prioritizing community green space needs should be central to the work of the proposed land trust. The land trust should adopt a “just sustainability” approach to vacancy conversion that emphasizes social equity in the creation of greening projects.⁵⁴ A just sustainability approach would operate at the intersection of sustainability and environmental justice, recognizing the historical injustices that shape the present conditions of vacancy conversion work. As noted earlier, areas of concentrated vacancy in St. Louis are also areas that struggled historically with disinvestment, segregation, and other injustices. Situating the work of the land trust within a just sustainability approach would help ensure that these injustices are addressed in some meaningful way by greening projects.

The land trust can embed community needs and priorities into its operations by developing mechanisms of practice that create purposeful involvement. This includes the use of participatory planning and regular public engagement to ensure specific projects reflect the needs and priorities of residents, community-serving organizations and other stakeholders. These

⁵⁴Seymour, M. (2012). Just sustainability in urban parks. *Local Environment*, 17(2), 167-185; Agyeman, J., & Evans, T. (2003). Toward just sustainability in urban communities: building equity rights with sustainable solutions. *The ANNALS of the American Academy of Political and Social Science*, 590(1), 35-53.

participatory mechanisms also provide value to the land trust by providing local knowledge about on the ground conditions in the service area.

For this study, broader needs and priorities related to urban green space were evaluated. This study analyzed broader stakeholder needs and priorities using surveys and workshop data provided by GCC. The GCC had held visioning sessions and conducted a strategy workshop involving representatives from 30 organizations that helped refine needs and priorities across the following impact areas:

- Neighborhood Aesthetics and Appeal
- Prosperity
- Safety
- Sense of Community
- Health & Well-Being

Representatives from these organizations identified action steps and resources and more than half of the participants noted an ability to impact Neighborhood Aesthetics and Appeal, Sense of Community, and Health & Well-Being. An organizational survey to stakeholders working in the proposed land trust service area was administered later that year and identified the following priorities for a proposed land trust:

- Safety
- Illegal dumping
- Neighborhood revitalization

These priorities support previous outreach work by the GCC. Though response rates were low (8 anonymous responses), they were consistent with the identified impact areas.

Assessing Community Impact

The proposed land trust will need to regularly plan for and assess its impact on the community. The Land Trust Alliance's Community Impact Framework is a tool for evaluating work with residents, community-serving organizations and other stakeholders. This tool can help the proposed land trust gauge its community conservation efforts and shift its focus toward building

important relationships with community members. The tool includes the following assets and impacts⁵⁵:

Resource-Level Impacts

Asset Type:

- *Natural and Working Lands* - identifies natural systems as community assets
- *Financial* - Identifies financial assets and community economic health
- *Built* - Assets related to infrastructure and the built environment

System-Level Impacts

Asset Type:

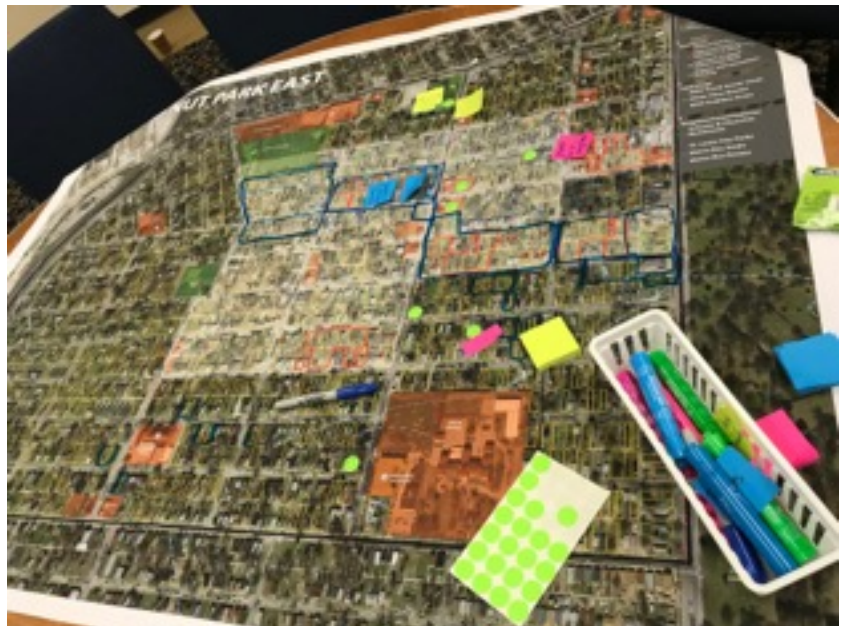
- *Equity and Access* - Assets that promote opportunities for just programming, planning opportunities and policies as well as access to the community experience
- *Political* - Assets that promote or enable a communities access to political power
- *Social* - The trust, relationships and networks that serve as assets for the community

Human-Level Impacts

Asset Type:

- *Intellectual, Emotional, Spiritual* - Assets that address knowledge, innovation an spirituality
- *Skills and Health* - Assets that involve individual skills or public health
- *Cultural* - Assets that reflect values and identities of place, race/ethnicity, and class

Working across these nine asset types can help ensure that land trust operations are impactful and meet community needs.



⁵⁵ Land Trust Alliance (2016). *Assessing and Planning for Community Conservation Impact*.

Next Steps

Early steps to develop a framework for vacancy to green space conversion are already in place. The Green City Coalition (GCC) has networked with stakeholders and conducted visioning sessions to help inform the organizational purpose of the land trust. The proposed land trust will be formalized through a planning and implementation process developed by GCC leaders. This section briefly outlines considerations for developing these processes.

The GCC should begin formalizing planning committees for various aspects of land trust implementation. Below are a few possible committee options:

- Strategic Planning Committee

The strategic planning committee will establish long-term goals for the land trust and identify action steps to meet them. While most strategic planning work will be conducted once the land trust is formalized, the GCC can begin identifying members for the committee and commission legal and market research for the process.

- Recruitment Committee

Establishing a recruitment committee for board members is a crucial next step in the process. The committee will need to identify potential board members with a variety of expertise and experience from the land trust's service area. A recruitment committee can also identify strategic partners to be invited to serve on the board. Additionally, the recruitment committee can develop processes for hiring qualified staff.

- Finance and Marketing Committee

Though identifying funding sources will be an ongoing challenge for the land trust, a committee can begin identifying funding sources that will be especially critical in the organization's early phase. Creating a marketing plan for the organization will help create an identity for the urban greening effort and increase its ability to gain membership (if GCC decides to offer) and generate donations.

- Community Economic Development Committee

Economic development considerations should be paired with urban greening early in the process. Land trusts in cities surveyed for this report often created community economic development

plans along with targeted plans for urban greening. A committee with expertise in community economic development can help inform efforts to create green job training programs or related work by the land trust.