MAKING SOIL: THREE URBAN COMPOST RECIPES

GROWING POWER
MILWAUKEE WISCONSIN

COMPOSTING GOWANUS
BROOKLYN, NEW YORK

GAINESVILLE COMPOST
GAINESVILLE, FLORIDA

ABSTRACT

Making Soil: Three Urban Composting Recipes

Cities are built in soil. Gardens grow in it, as do the trees that shade our streets and the grass that we lay on in the park. It absorbs and filters storm water runoff before it can reach the sewer. Healthy soil is necessary for any urban ecosystem to thrive, and yet urban soil is subject to massive stresses. Compaction from foot and vehicle traffic and a lack of organic material reduces the ability of urban soils to absorb water and support plants. Pollution from industrial sites and car exhaust lace urban soils with heavy metals and other pollutants. Long isolated from any source of nutrient replenishment, urban soils often suffer from a lack of micro-organism and fungi diversity, reducing their ability to transport nutrients and resist plant killing pathogens, further eroding their ability to support life.

Composting is the inevitable natural process by which bacteria decompose organic material into nutrient rich, biologically robust black soil that anchors and feed plant roots, retain storm water, and give living space to earthworms, bacteria, fungi, and insects. It is something of a paradox that cities are at once both a place of landfills overflowing with waste and also the place in constant need of healthy soil that can be created from that waste. Many backyards across the country have composting bins, and some large municipalities such as San Francisco and Portland have created city wide composting programs. The step between a backyard operation and a city wide operation, however, is huge, and the middle ground between the two has many of the logistical challenges of a large operation without the built in institutional resources to handle them. And yet it is at the immediate neighborhood level that closing the urban soil nutrient loop is most immediately meaningful, especially when combined other other activities that require healthy soil as a component of a larger ecological mission (i.e. urban farming, bio-remediation, or environmental education programs). Community level urban compost operations have the potential to build the soil resources of the community using only materials from that community, but careful logistical organization of the composting system is key.

Just as no two urban communities are the same, no two urban composting programs need be the same. This study seeks to understand composting as a organic process inevitably tailored to its specific urban location. The various components of a successful composting operation are organized by component into a recipe. Three successful case studies of various sizes and methodologies are then discussed in terms of each component, showing where they are similar and where they are different in composting methodology, material sourcing, social organization, funding sources, regulatory compliance, and ultimate use of the decomposed organic material.

Cases:

Growing Power in Milwaukee, Wisconsin
Composting Gowanus in Brooklyn, New York
Gainesville Compost in Gainesville, Florida

GROWING POWER

MILWAUKEE, WISCONSIN

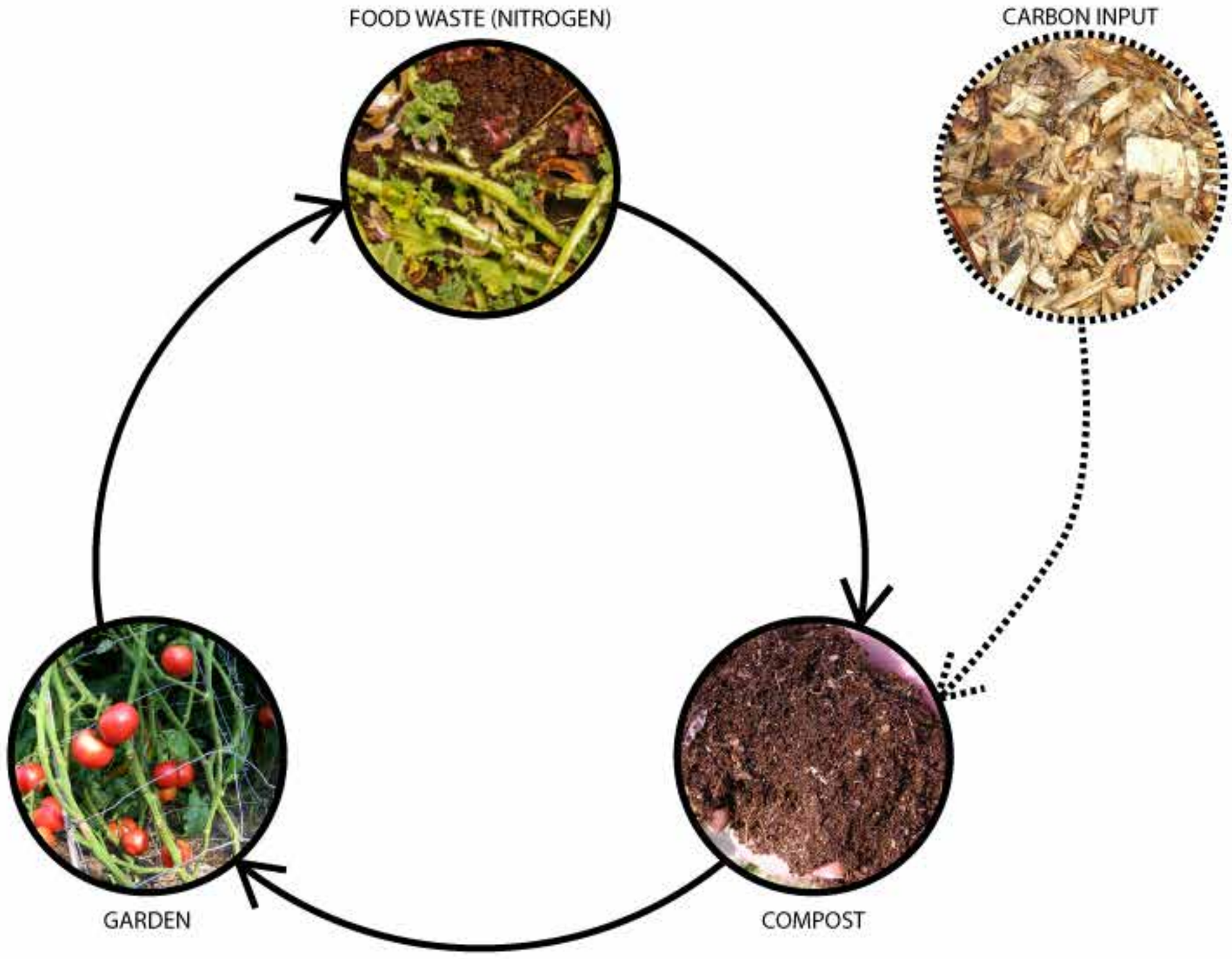
COMPOSTING GOWANUS

BROOKLYN, NY

GAINESVILLE COMPOST

GAINESVILLE, FLORIDA

SOIL NUTRIENT CYCLE (VASTLY SIMPLIFIED)



ANALYTIC FRAMEWORK FOR PROGRAM ANALYSIS

1. PROGRAM GOALS	What are the program goals (community development, soil creation, profit, etc.)?
2. GREENS SOURCE	Where does the nitrogen dominant feedstock come from?
3. BROWNS SOURCE	Where does the carbon feedstock come from (browns)
4. COMPOSTING METHOD	What is the dominant composting method (aerated bins, windrows, anaerobic digester)?
5. LOCATION	Where is the program located and why?
6. LABOR	Who does the work to make the program operate?
7. FUNDING	Where does the capital and operating budget come from?
8. ADMINISTRATION	Who is in charge?
9. DISTRIBUTION NETWORK	How are the various materials brought to the composting site, and then how is the finished compost distributed?
10. REGULATION	What regulatory hurdles had to be dealt with?
11. DEMAND	Who gets the compost at the end of the composting process? Is it used to its fullest potential?
12. SUCCESSES	To what extent do all these interrelated factors contribute to a robust urban soil nutrient cycle?
13. CHALLENGES	What significant challenges remain?

PROGRAM GOALS

GROWING POWER

Growing Power is an urban farming organization founded in 1993. While it now has satellite sites in many cities around the country, the original site in Milwaukee is a year round example farm that develops urban farming techniques and methods, while also fighting for food justice in the inner city.

Fundamental to the operation of the farm is an intensive composting program. The program is used to create all the fertilizer for the farm, while also functioning as a compost demonstration and education site.

COMPOSTING GOWANUS

Composting Gowanus is a project of the Gowanus Canal Conservancy, an environmental advocacy and stewardship organization in Brooklyn, New York. The Gowanus Canal is a heavily polluted industrial waterway in the heart of Brownstone Brooklyn, and the Conservancy works to bring awareness to the canal as an amazing potential community resource and to advocate for its clean up.

Involved in large amounts of garden building on the banks of the canal, the Conservancy started the composting program as a way to create new healthy soils for the canal and to also divert organic materials from the city's waste stream. The composting program also demonstrates the potential for green infrastructure centered on the canal.

GAINESVILLE COMPOST

Gainesville Compost is a for profit "pedal powered community compost network" founded in 2011 in Gainesville, Florida.

The company works to divert organic material into a sustainable, local compost network to create valuable compost products, while at the same time fostering community relationships centered around gardens and urban agriculture.

GREENS SOURCE

GROWING POWER

Nitrogren feed stocks are sourced from local Milwaukee businesses. Unsold produce comes from Maglio's Produce, Tropic Banana, and Outpost Natural Foods Coop. Used coffee grounds come from Alterra Coffee in downtown Milwaukee. Appropriately for Milwaukee, Growing Power also composts brewery waste grain from Lakefront Brewery.

COMPOSTING GOWANUS

In it current incarnation, Composting Gowanus receives its nitrogen feed stocks once a month from four drop-off sites at Brooklyn farmer's markets. GrowNYC, which also organizes the farmers markets, staffs the drop-off points where Brooklyn residents bring their organic waste. The waste is consolidated in bins and transported by truck to the Composting Gowanus site beside the Gowanus Canal.

GAINESVILLE COMPOST

Gainesville Compost currently gathers its nitrogen feed stocks from eleven local restaurants and businesses within a two mile radius of downtown. Kitchen waste is picked up once a week by a paid employee using a bicycle trailer and distributed to the various composting sites.

BROWNS SOURCE

GROWING POWER

Carbon feed stocks include unsold newspapers from the Milwaukee Journal Sentinel, as well as grass clippings, hay, leaves, and wood chips from various local sources.

COMPOSTING GOWANUS

Carbon feed stocks come from a variety of sources that vary month to month, sometimes wood shavings from area wood shops, sometimes leaf collection drop-offs from area residents, sometimes wood chips from the NYC Parks Department.

Composting Gowanus also owns a wood chipper, which it can use to make its own wood chips.

The sourcing of these materials is currently much less secure than the nitrogen feed stocks.

GAINESVILLE COMPOST

Carbon feedstocks, similar to Composting Gowanus, are currently sourced on an ad-hock basis, mostly from residential leaf collection. The company is currently working on securing a more stable supply of carbon material.

NEWSPRINT
MILWAUKEE JOURNAL SENTINEL

GROWING POWER

MARKET FOOD SCRAPS
MAGLIO'S PRODUCE

MARKET FOOD SCRAPS
OUTPOST NATURAL FOODS

COFFEE GROUNDS
ALTERRA COFFEE

BREWING GRAINS
LAKEFRONT BREWERY

WHOLESALE FOOD SCRAPS
TROPIC BANANA

WOODCHIPS
SOUTH MILWAUKEE

FARMERS MARKET DROPOFF
WILLIAMSBURG AND GREENPOINT

ten minute walk

FARMERS MARKET DROP OFF
BROOKYLN HEIGHTS AND COBBLE HILL

ten minute walk

FARMERS MARKET DROP OFF
FORT GREENE AND CLINTON HILL

ten minute walk

BACKYARD LEAVES

COMPOSTING
GOWANUS

WOODSHOP SAWDUST

ten minute walk

FARMERS MARKET DROP OFF
PARK SLOPE, PROSPECT HEIGHTS, AND
CROWN HEIGHTS

WOODSHOP SAWDUST

PROSPECT PARK WOOD CHIPS


THE JONES
COMPOSTING SITE
TEMPO BISTRO
8TH AVE. BIKE AND COFFEE
CURBSIDE LEAVES
COMPOSTING SITE
KRISHNA HOUSE
LEONARDO'S 706
REGGAE SHACK
FLASHBACKS CAFE
KARMA CREAM
CURBSIDE LEAVES
COMPOSTING SITE
DOWNTOWN FARMERS GARDEN
THE LUNCHBOX
GROOVESHARK
FLASHBACKS CAFE
FLASHBACKS CAFE
COMPOSTING SITE
CHURCH OF THE HOLY COLORS
CURBSIDE LEAVES

COMPOSTING METHOD

GROWING POWER

The composting process at Growing Power is deeply integrated into the entire farming operation. There are two major compost tracks, one using active windrows for heat generation and the other using red wiggler worms for worm casting production.

Active windrows are either piled against the exterior walls of greenhouses or stacked in each of the four corners. As the aerobic decomposition process proceeds, temperatures of up to 170 degrees Fahrenheit heat the greenhouses, extending the growing season through the winter.

Worm bins are kept in inside the warmed greenhouses. Worms eat the feed stocks, leaving worm castings behind. Leachate is collected from the bottom of the worm bins and used as a compost tea. Finished compost is sorted in re-purposed domestic clothes' dryers to remove rocks and other contaminants. Careful process control allows for recovery of up to 80% of red wigglers from castings to be added to the next batch. Will Allen likes to joke that he considers his worms to be Growing Power's most productive employees.

Growing Power also recently began a pilot project with an anaerobic digester, using the harvested methane as another greenhouse heating method.

COMPOSTING GOWANUS

The composting process is relatively linear. The nitrogen and carbon feed stocks are layered in a 1:1 ratio in active windrows on a thick, wood chip base. The windrows quickly heat up to around 170 degrees Fahrenheit. This high temperature kills pathogens and weed seeds in the piles. The piles are turned once a week for four or five weeks, and then left to cure in a separate pile for at least that long. Once cured, the compost is sifted and stored until used in Conservancy projects.

GAINESVILLE COMPOST

Gainesville Compost primarily uses a three phase bin system. Nitrogen and carbon feedstocks are mixed together in a 1:1 ratio by volume in one bin. After two weeks, the material in one bin is cycled to the adjacent one. Once moved through all three bins, the finished compost is sifted with a custom designed bicycle wheel sifter and packaged for sale or for use at the composting site itself. The compost bins are built form reclaimed materials donated through a partnership with the Repurpose Project, a local Gainesville non-profit.

The company is currently experimenting with the Bokashi composting process, where nitrogen feed-stocks are buried underground for two weeks with a microbial starter. This process kick starts the decomposition process, making the three phase system faster and reducing smells once the feed-stocks are transferred to the three base bins.

The company is also building red wiggler worm bins similar to the ones used as Growing Power, as the vermicompost produced from them has a higher nutrient density than standard compost and can therefore be sold for more money.

TRUCK TRANSPORTATION

GREENS
FOOD SCRAPS
COFFEE GROUNDS
BREWING GRAINS

BROWNS
NEWSPRINT
WOOD CHIPS
HAY

VERMICOMPOSTING

WORMS RECYCLED

WORMS REPRODUCE

FINISHED VERMICOMPOST

EXTRA WORMS SOLD FOR COMPOST STARTUPS

SOLD AS FERTILIZER

WINDROWS

HEAT GREENHOUSE WALLS

PILES TURNED BY EMPLOYEES AND VOLUNTEERS

FINISHED COMPOST

SIFTING

SIFTING

ANEROBIC DIGESTER

DIGESTION FINISHING

BIOGAS FOR GREENHOUSE HEATING

GROWING POWER DEMONSTRATION FARM

KNOWLEDGE

FOOD

TRUCK
TRANSPORTATION

TURNED ONCE A WEEK

CURED FOR AT LEAST
FOUR WEEKS

TRUCK
TRANSPORTATION

FUTURE COMPOST
SALES AT FARMERS
MARKET

BICYCLE TRAILER TRANSPORTATION

BROWNS
RESIDENTIAL LEAF COLLECTION

GREENS
RESTAURANT FOOD WASTE

COMPOSTING SITE
THREE STAGE BINS

COMPOSTING SITE
THREE STAGE BINS

COMPOSTING SITE
THREE STAGE BINS

COMPOSTING SITE
THREE STAGE BINS

ROTATED THROUGH THREE BINS OVER SIX WEEKS

ROTATED THROUGH THREE BINS OVER SIX WEEKS

ROTATED THROUGH THREE BINS OVER SIX WEEKS

FINISHED COMPOST SIFTING

FINISHED COMPOST SIFTING

FINISHED COMPOST SIFTING

FINISHED COMPOST SIFTING

BICYCLE TRAILER TRANSPORTATION

COMMUNITY GARDEN BUILDING

COMPOST CSA DISTRIBUTION

COMPOST AND COMPOST TEA SOLD AT FARMERS MARKETS

GARDEN BUILDING AT FOOD SCRAP CONTRIBUTORS

LOCATION

GROWING POWER

The Milwaukee headquarters of Growing Power is a two acre site in the northwest corner of the city, in the middle of a low income neighborhood. It is the only working farm in the city limits. The site contains six greenhouses, five hoop houses, a farm stand / store, and the administrative offices of Growing Power. The composting operation is distributed throughout the site, inside and outside the greenhouses.

COMPOSTING GOWANUS

Composting Gowanus is located at a NYC Department of Sanitation salt storage lot on the banks of the Gowanus Canal. Sanitation uses the site to store a pile of road salt in the winter, but otherwise the conservancy has free reign over the site. The salt lot is the staging ground and tool storage site for the Conservancy's other projects.

The salt lot is in an industrial area, far away from any residential areas where people often complain about large composting operations. Access was worked out by political relationships developed over the last few years between members of the Conservancy's board and members of City Council, and in turn with the area directors of the Department of Sanitation. The Conservancy does not have a lease or any other form of ownership over the land, and while the relationship is stable, it is not formalized officially as of right now.

GAINESVILLE COMPOST

Gainesville Compost uses multiple composting sites at locations around downtown Gainesville. Currently, they are operating four sites, and are looking to expand to more. The site partners are two restaurants that contribute food scraps to the company, as well as two community gardens. The partners agree to host the compost bins, and in return receive free compost .

The sites are small, with three phase bins at each location. The distributed model has a number of advantages. Using small batches keeps the volume at each site far below the amounts that require state regulatory oversight. Smaller batches also reduce odor and vermin problems.

Working with partner sites allows Gainesville Compost to operate without leasing or owning a site, reducing the start up costs required. Chris Cano, the owner of the company, also says that the community building aspect is also important to him. Being in multiple sites allows creates the potential for the development of richer community relationships. As the company expands, more sites will be added as required.

LABOR

GROWING POWER

The Growing Power compost operation is quite labor intensive given the constant shuffling of materials around the farm site. The feed stock pick ups are done by paid Growing Power employees driving Growing Power trucks. The on site labor of rotating windrows, filling and emptying worm bins, and sifting finished compost is done my a mixture of paid employees, students on site for workshops, and volunteers.

COMPOSTING GOWANUS

GrowNYC employees staff the feedstock collection booths at the farmers markets, and drive the trucks that deliver the compost to the composting site. All other work on the project is on a volunteer basis. Composting Gowanus coordinators organize groups of 15 to 18 untrained volunteers to build the windrows once a month. These same coordinators then participate in turning of windrows each week. The director of the program, Eric Martig, sometimes comes to the site before work and turns compost for two hours for his morning workout.

Highly successful fund-raising (discussed below) is allowing for the creation of a new forced air system that will greatly reduce the amount of turning required, and therefore the amount of volunteer labor required on a weekly basis. This system should be up and running by early next year (2013).

GAINESVILLE COMPOST

Chris Cano owns the business, and does a significant amount of the work, both out in the city distributing feed-stocks, turning compost piles, and manning booths at farmers markets. He currently has one part time employee that does food scrap pickup two days a week, and a number other people that help out as needed depending on the work required. A number of people also assist with specific projects, from building bike trailers to developing new composting techniques.

FUNDING

GROWING POWER

Growing Power is a not for profit organization that funds its operations by money through grants, fee for service programs, product sales, and contributions from individuals and corporations. Specific to composting, compost training workshops are offered for a fee. Finished compost and red wiggler worms are also offered for sale.

COMPOSTING GOWANUS

The Gowanus Canal Conservancy is a not for profit organization. Composting Gowanus is funded by grants and donations.

Composting Gowanus has been quite successful at fund raising. In 2009, the compost program won a $2000 dollar award to jumpstart the program from FEAST, a local fund raising dinner party.

Since then, the organization has raised over $200,000 from a variety of sources. Most recently, as part of a participatory budgeting initiative, Composting Gowanus was awarded $165,000 from Council District 39, voted on my members of the community. This money, as well as appropriations from other city council and state representatives, will allow Composting Gowanus to build an active aeration system at the Salt lot that will reduce the amount of windrow turning required and greatly increase the capacity of the system.

GAINESVILLE COMPOST

Gainesville Compost is completely self funded. By using locations on other organizations land, building bike trailers and compost bins out of reclaimed materials, and advertising through word of mouth and social media outreach, the over head of the company is extremely low. Start up costs could therefore largely be funded by the sale of compost materials. That being said, developing a consistent revenue stream has been a challenge, and the company is currently exploring multiple options for generating revenue. See the demand section below for more detail.

ADMINISTRATION

GROWING POWER

The CEO and public face of Growing Power is Will Allen, co-founder of the organization. He dominates promotional materials. He is the person interviewed for articles on Growing Power, and his recently published auto-biography tells the story of his life inextricably linked to the Growing Power organization. He was awarded a MacArthur Foundation Genius Grant in 2008 for his work.

Soil creation is fundamental to his vision of urban farming, and so is deeply integrated into all aspects of the farm.

COMPOSTING GOWANUS

Composting Gowanus is directed by Eric Martig. Eric also works for GrowNYC as a coordinator of their compost program, so his two positions have allowed for the collaboration between the two non-profits. Trained as a landscape architect, Eric decided his passion for compost was more exciting than an office design job, and he has advocated for and built Composting Gowanus from scratch in his spare time over the past three years.

Eric works closely with the GCC's one employee, Director of Special Projects Hans Hesselein, and also with the organization's board of directors to integrate the composting program with the larger goals of the organization. The close relationships built between multiple non-profits (the GCC, Brooklyn Neighbors Composting, GrowNYC) and government organizations (city council members, the Department of Sanitation, the Parks Department) have contributed to the success of the fund-raising and the infrastructure development. Operating costs are currently covered by this fundraising, but in the future Composting Gowanus hopes to cover its costs by selling finished compost at the same farmer's markets where the feed-stocks are dropped off.

GAINESVILLE COMPOST

Chris Cano graduated from the University of Florida in 2010, but had already been working for years as a web developer. He started Gainesville Compost in 2011 as a side project, and the project has quickly grown into his main pursuit. Chris is the owner / operator, and is passionate about running a business that makes money, but first and foremost has a positive impact on the community. Gainesville Compost is a for profit operation, but Chris also actively engages in a significant amount of community outreach, contributing materials and expertise to community gardens and local education programs.

DISTRIBUTION NETWORK

GROWING POWER

The feed stocks are brought to the Milwaukee Headquarters site by truck, and then used in farming operations on site. The compost that leaves the site does so only after it is sold.

COMPOSTING GOWANUS

The feed-stocks are brought to the composting site by trucks owned by GrowNYC, and finish compost is distributed around the canal by wheelbarrow or GCC rented trucks. In the future, Composting Gowanus hopes to sell finished compost at the farmer's markets, directly beside the food waste drop off sites.

GAINESVILLE COMPOST

All materials are transported by bicycle trailer. Custom designed and fabricated trailers can haul up to 400 pounds at a time. Cano has considered purchasing a truck, but right now all of the transportation capacity is being met by bike trailer.

REGULATION

GROWING POWER

Oversight of composting in Wisconsin is by the Wisconsin Department of Natural Resources. Wisconsin regulations for food waste processing are tiered according to the size of the facility. As long as facility processes less than 5,000 cubic yards a year, licensing only requires submission of a simple document outlining the composting process, and does not require a water management plan or certification by a professional engineer.

The Milwaukee site processes approximately 500 tons a year, or 665 cubic yards, far below the 5,000 cubic yard threshold.

COMPOSTING GOWANUS

New York City has a complex regulatory environment. When the program first began, Compost Gowanus picked up restaurant food waste, not knowing that it was illegal without a prohibitively expensive commercial waste hauling license. The use of some commercial generated carbon feed stocks is also technically not legal, but thus far Composting Gowanus has been able to avoid citations.

The move towards collecting a sufficient amount of non-commercial food waste took a while, and was only possible with the close collaboration between Composting Gowanus and GrowNYC. Fortunately, as the site is not adjacent to any residential areas, the NIMBY elements that often object to neighborhood composting has not arisen. NY State regulations for composting operations do not apply to facilities that process less than 3000 cubic yards a year, which composting Gowanus is far below.

GAINESVILLE COMPOST

Gaineville Compost follows the guidelines for composting temperature and time set by the EPA. By keeping the compost operation distributed through multiple sites, the volumes at each site are kept at a residential scale, far below the volumes that trigger regulatory oversight from the state of Florida. Cano has been in touch with officials in both the City of Gainesville and Alucha County to make sure he is operating within the rules, and has not had any issues thus far.

DEMAND

GROWING POWER

The Growing Power farm creates the demand for the compost operation. Any compost not used on the farm is sold at the on site store, or stored until it can be used by the farm.

COMPOSTING GOWANUS

The Gowanus Canal Conservancy provides the demand for the finished compost, which can be taken directly from finished windrows and used in rain gardens, tree pit restoration, and other GCC volunteer efforts. In the future, Composting Gowanus hopes to sell finished compost at the farmer's markets (directly beside the food waste drop off sites) and use that money to fund the day to day operation of the system.

GAINESVILLE COMPOST

Cano believes there is enough demand on both sides of the nutrient loop in Gainesville to fund the company. Currently, most of the company revenue comes from compost and compost tea sales at local farmers markets. Cano is currently experiment with different sales methods, trying out multiple container sizes and product combinations to try to boost farmers market sales. The company is planning to start a compost CSA once the production reaches a significant enough amount to supply one consistently. The company is beginning to offer composting consultation services to people who want to start a bin in their backyards or in their apartment. Red wiggler worms for worm bins are being offered for sale. The company is now charging a nominal fee for each commercial pick-up.

The biggest source of new demand is the University of Florida, and Gainesville Compost is partnering with a group of green businesses on a proposal for reducing university waste. If chosen, the company would be able to expand rapidly to multiple collection and composting sites on campus.

SUCCESSES

GROWING POWER

Out of the three compost programs in this case study, Growing Power has by the far the most integrated soil nutrient system. As an important component of an urban farm, the compost both feeds the food grown in the farm, and also heats the spaces in which they grow through the cold Milwaukee winter. Distributed through out the farm in windrows or worm bins, the soil creation is happening in the same spaces as the food production. With any organic waste from the farm going directly into the compost, the program integrates all elements of the nutrient cycle in the same space.

COMPOSTING GOWANUS

Fund raising has been very successful. FEAST seed money was used for initial supplies, and now the big $200,000 grants from city government will be used for more robust facilities that will reduce the amount of required volunteer labor. The coordination with other non-profit organizations (GrowNYC, Brooklyn Neighbors Composting) has allowed Composting Gowanus to pool resources and work towards common goals, allowing the program to grow much quicker then it would have been able to otherwise.

GAINESVILLE COMPOST

The most successful part of Gainesville Compost has been the development of an extensive network of community partners. Their are multiple sets of relationships that allow this network to work. First is the relationship between food scrap supplier and company. The next is between the company and the composting sites. The third is between company and compost consumer, many of which are the same restaurants that supply the food scraps to begin with, completing the soil nutrient loop back at the same site.

A huge part of coordinating these multiple relationships is done by extensive use of social media. Gainesville Compost is all over Facebook and Twitter, while also having its own website. These communication tools allow it to advertise its services and products for free while also expanding its network of potential future partners.

INDIVIDUAL COMPOSTING
BACKYARDS

GAINESVILLE COMPOST
GAINESVILLE

COMPOSTING GOWANUS
BROOKLYN

GROWING POWER
MILWAUKEE

MUNICIPAL COMPOSTING
SAN FRANISCO, PORTLAND

SMALL

BIG

SCALE OF OPERATION

NONE

FULL

NUTRIENT CYCLE INTEGRATION

CHALLENGES

GROWING POWER

A stated goal of Growing Power is to serve as a model urban farm that could be copied by other organizations around the country and world. As a non-profit, dependent upon donations and volunteer labor, Growing Power has been wildly successful. But to demonstrate that urban agriculture, with urban composting as a significant part, can be a self sustaining, money making enterprise, the systems currently in place would have to change in response to economic factors, and trade-offs would need to be made between using a labor intensive system and one that provides the amount of compost required for the farm.

COMPOSTING GOWANUS

A major challenge that the conservancy is working on is to ensure the long term site security of the composting facility beside the canal with out relying on a friendly city government for tacit approval. Further integrating soil creation with other components of the Gowanus Canal Conservancy's efforts remains a challenge. As the conservancy's efforts along the canal diversify, using the compost in a responsible way remains key. And finally, as mentioned above, creating a revenue stream that supports the operating budget of the program without relying on extensive fund raising in the future is also a key challenge that needs to be met.

GAINESVILLE COMPOST

The big challenge facing Gainesville Compost is that faced by all other new small businesses- most fail within a couple of years. The company is still in the discovery phase, testing out composting methods, seeking to expand onto the U of F campus, and experimenting with product packaging and branding. In the next few years it will have discovered if the no fossil fuel, multiple small site, for-profit composting model has long term viability. Key to the companies growth is also maintaining its community and sustainability focused ethic as it maneuvers to meet the economic challenges of a for profit business.

Urban composting at a community scale is a complicated process. For each of the cases studied, changing one component of the system requires adjustments of other components. As components will always be changing, the development of a successful system requires a significant dedication of time and energy from the people involved. While each of the cases has been successful in different ways, they each provide specific insight into what is working for a specific organization in a specific place working towards specific goals. For this reason, there is no ideal urban composting methodology. Rather, as a complex social and ecological system, urban composting must constantly adjust to the realities of a given situation to be successful.

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FURTHER INFORMATION

More Urban Composting Projects

Bootstrap Compost (Boston, MA) - www.bootstrapcompost.com

Compost Cab (Washington DC) - www.compostcab.com

East Side Compost Pedalers (Austin, TX) - www.facebook.com/Compedallers

LA Compost (Los Angeles, CA) - www.facebook.com/pages/LA-Compost/184942498306202

Pedal People Compost Coop (Northhampton, MA)- www.pedalpeople.coop

Revolution Compost (Burlington, VT) - http://www.onevt.com/my-blog/revolution-compost.html