FRESH ROOTS

Growing Neighbours: A Case Study of Schoolyard Market Gardens

About Fresh Roots

Our Vision

Good Food For All. We envision a world where everyone has access to healthy food, land, and community.

Our Mission

Fresh Roots cultivates engaging gardens and programs that catalyze healthy eating, ecological stewardship, and community celebration.

We do that through Schoolyard Market Gardens, educational farms where the food we grow is sold into the school community: into the cafeteria, food access programs, and to our neighbours. We facilitate outdoor experiential learning with teachers and students, mentor youth leaders through garden clubs and summer programming, and empower Vancouverites to grow their own through our volunteer programs. Fresh Roots also works with organizations to develop their own market gardens and associated garden programing. We are a thought leader in institutional food systems change and outdoor experiential learning.

Our Beliefs

Our beliefs drive us towards our vision and direct our activities.

- We believe that Good, Healthy Food is a right for all people.
- We believe that food is an inspiring and mobilizing force for good.
- We believe that education is the first step towards positive personal and systems change.
- We believe that healthy food systems are dependent upon a healthy environment and empowered communities.
- We believe that how we work together is as important as the work we do.
- We believe that collective action is imperative to food systems change.

Thank You to Our Funders

Fresh Roots gratefully acknowledges the financial support and organization guidance from the Real Estate Foundation of BC, Vancity, The City of Vancouver, and the Vancouver Foundation. Without their support the Schoolyard Market Gardens would never have been possible. Thank you for helping grow Good Food For All.

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Why Schoolyard Market Gardens?

2000 VBE students go hungry every day; 30% are overweight or obese. On average, students receive 35% of their calories in school; food insecure students - 50%. Vancouver's youth (65%) do not eat the recommended daily amount of fruits or vegetables; 48% of healthy weight females are trying to lose weight. The same is true across districts, and outside schools: hospitals, long-term care facilities, university campuses—in all of these places we are stuffed, starved and searching for solutions.

With over 26 acres available in the Vancouver School District alone, we can feed every student healthy food – all while utilizing school land to foster ecological stewardship, food literacy skills, and community connections. Through the development of some of the first Schoolyard Market Gardens in Canada, we have cultivated knowledge in community development, small-plot intensive farming practices, school food systems, and sustainable land use practices. Growing neighbours shares the key lessons we've learned in growing Schoolyard Market Gardens.

Through this case study you will learn more about the David Thompson and Vancouver Technical Secondary Schoolyard Market Gardens, as well as what it takes to grow food in small spaces, the success and challenges Fresh Roots experienced during establishment and what you will need to make your own schoolyard (or hospital, or business) market garden a success.

We're here to help—so get in touch: info@freshroots.ca

Fresh Roots students experience the full cycle of the food system, from growing to cooking. As a result, students choose healthy, local produce more often which is good for their health and for farmers.

Legal Agreements

Legal agreements ensure that both the farm and the institution are protected from miscommunication. Your institution may have its own template, but certain aspects are critical. See our template in the appendix. We believe they are:

1. Explicitly allow gardening and the full suite of activities it implies (i.e. composting, seeding, etc.) as well as food sales, events, and other programing.
2. Each market garden has a specific boundary. Anything inside the boundary is the absolute responsibility of the organization.
3. The agreement must be for as long as possible (BC school boards have authority to commit up to five years) with clear intention to renew.
4. Ensure access to the school's existing infrastructure (includes washrooms, utilities).

What Fresh Roots Did

Fresh Roots built two Schoolyard Market Gardens with the Vancouver School Board in 2013. These farms are roughly 1/2 acre each, and include significant areas for gathering spaces and an outdoor classroom. From idea to breaking ground, the process took three years, with one year reserved for developing a legal framework for the Schoolyard Market Gardens.

What We're Proud Of

Our agreement with the Vancouver School Board opened the door for community-engaged farming on school board land. The legal agreement articulates the school board's and Fresh Roots' roles and responsibilities. Many school boards are inherently risk averse. The legal agreement gives the institution clarity as to what they can expect will take place on site, a means of recourse (should anything be amiss), and security that there is a third-party committed to mitigating all situations. Our legal agreements make it possible to work more closely with the Vancouver School Board.

Land Access

Successful Schoolyard Market Gardens incorporate three critical elements: sufficient production spaces, outdoor seating space for classes and gathering, and educational production space for classes, workshops, and afterschool programs.

Key Lesson #1

Make sure you have enough space. Sufficient farming space must include not only space for crops, but also adequate storage, processing, and refrigeration: At minimum this is 3/4 of an acre with a 1/2 acre in full production. While possible to succeed with less, ensuring that there is ample room for food production increases efficiency and makes hosting community events simple.

Clean totes are ready for harvest

Key Lesson #2

We did not recognize the importance of **in-situ processing, and dry storage**. We use temporary tents, tables, and water hook-ups. We work with schools to store winter farming equipment. As a result our community partners do not have access to cooking and processing materials on-site. Our goal is to have outdoor processing at each farm, where students and classes can easily cook outside, eating and sharing together in the gardens.

It Takes 4 Days...

Each farm was "built" in the course of four days. Over 600 volunteers assisted in moving soil and building farm beds. The City of Vancouver lent over 100 shovels, hoes, wheelbarrows, and rakes, ensuring we had enough tools and making the process a success.

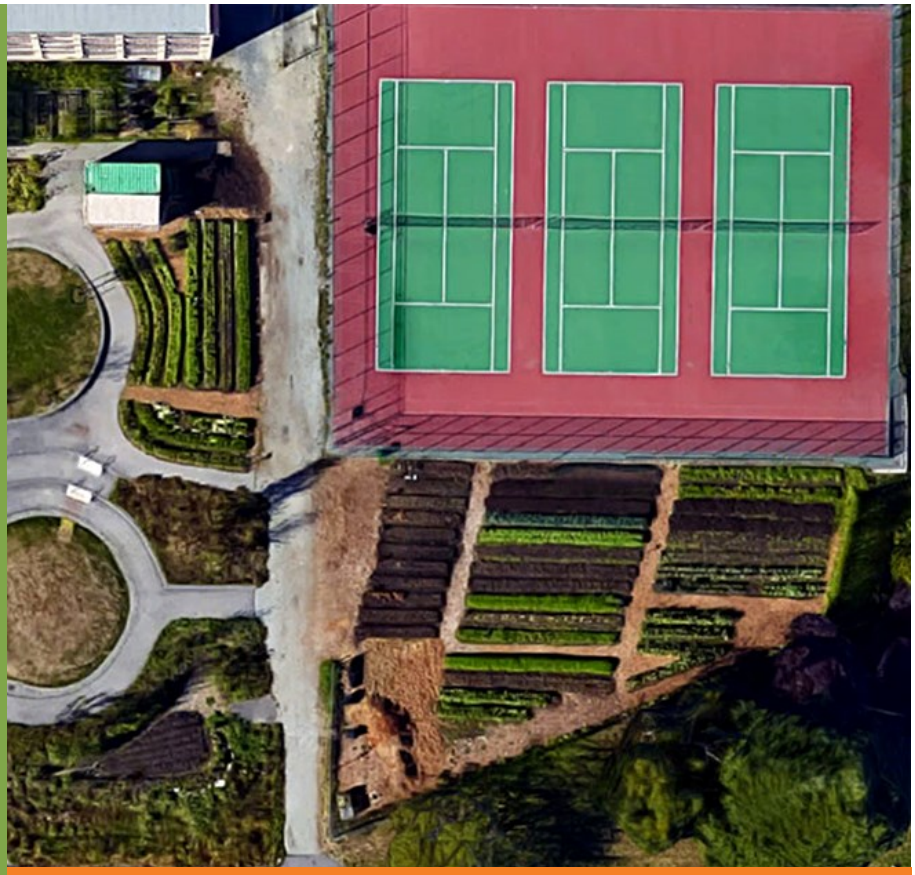
Volunteer project managers and farm builders were the primary "labour" building Schoolyard Market Gardens. This form of participation cultivated connections and established a sense of ownership within the community. Food, music, and games ensured that the farm build was fun and volunteers felt appreciated.

Check out a video of our David Thompson Market Garden Build.

...Or 4 Years

After we built the farms, we realized we had missed critical elements in establishing an institutional farm: clear entrances and exits, effective drainage, permanent signage on site; comfortable seating for outdoor classrooms. Without these elements production potential is limited as well as community members' understanding of the purpose of a farm on public land. We are still building this critical infrastructure.

In addition to physical infrastructure, systems must be established for farming and engagement: how much food can we grow? How many classes can use the garden space, and how would they like to use it? Who uses the space, why? How can community partners utilize the space? After 3 years, we are still honing our tracking systems for garden activities.



VanTech Secondary. Top left: students' raised garden beds, with two shipping containers used as storage. Traditional farm rows south of the tennis courts provide the majority of production growing space on the farm. Two circular grassy areas are outdoor classrooms.

How to Build a Schoolyard Market Garden

The growth of a Schoolyard Market Garden is not just a building event—it's an opportunity to grow community and individual ownership of the project. By applying the following principals you can establish the garden as a community space:

1. Build the physical site last. We have learned that initiating a full series of engaging events (design charrettes, celebrations, fundraisers) nurture excitement, commitment, and help plot the best course from idea to breaking ground.

2. Make it legal. Be sure to have a strong legal agreement signed with the school board before breaking ground.

3. Soil, soil, soil. Make sure you have access to good soil. If the site already has soil you intend to use, be sure to test for heavy metals and nutrients.

4. Use hand tools. While a bobcat could do it in less time, it doesn't offer opportunities for community participation. Use your farm build as a team building event for your community.

5. Grow community. Turn the farm build into the culmination of a whole school campaign. Using the build as a team-building event cultivates community ownership of the site. Community ownership mitigates vandalism and ensures clientele for the produce. Growing community grows your market and protects your fields from the get go!

Students in a social studies class are learning about three sisters crop cultivation methods used by indigenous communities—by doing it themselves!

How Much Does It Cost to Build?

The estimated capital costs of a half-acre schoolyard farm range from $50,000 - $90,000. This range assumes that the schoolyard farm is built through volunteer labour of students and community members, and is managed by skilled contractors. The large range is based on need for water or electrical connection, whether soil is in-situ or imported, any site preparation (grading, etc.), additional infrastructure, and additional labour. Infrastructure includes double hoop house systems, processing stations, toolshed, and any fencing that might be required. On average, we expect that the establishment of a ½ acre farm would cost:

Labour (varies)	$13,000+
Site Preparation (varies)	$140+
Irrigation	$5,000
Soil	$13,000+
Tools	$8,500
Infrastructure (varies)	$31,400
Total Estimated Build Cost	$71,040+

These costs are generated from our costs in building two Schoolyard Market Gardens. They do not include additional infrastructure (large shading structures, or classroom infrastructure, etc.). Additional costs would be incurred for large greenhouses as well as fencing for security.

What Fresh Roots Did

Fresh Roots worked closely with community partners to support the growth of farms through in-kind donations. Soil, amendments, utilities, small tools, signage and printed materials have all been donated or been discounted because of our non-profit mission. As a result we were able to reduce the cash costs of a new market garden. Transforming urban landscapes into productive gardens inspires people to get involved—in-kind donations is a clear way for organizations to give back.

Financing?

Ideally, institutions work closely with farmers or organizations to finance market gardens. Many institutions have limited budgets, particularly in schools. There is opportunity to use small landscaping budgets for seismic upgrades to leverage grants and fundraising.

There is great interest in bringing healthy local food to students. A capital campaign to build schoolyard farms and to support the growth of food access programs and healthy food programs at schools across Vancouver has significant potential for success.

Getting ready for planting!

Key Lesson #3

In addition to the urban farm on site, **additional operational support** is needed offsite. For multi-site urban farms, ensuring that there is a central processing and distribution site is critical to scaling up. When Fresh Roots first built our farms, we utilized donated refrigeration space and processed on site. Each future farm will incorporate either a walk-in refrigerator on site or a mobile reefer van. We are in the process of designing an urban farm processing station. This will increase the shelf life and quality of the produce, enabling Fresh Roots to serve more customers.

Farming Lessons

Soil is the foundational component to every farm. The greatest challenge of growing on urban land is the lack of healthy soil. Imported soil and compost is largely sand, as a result nutrients are quickly depleted and the structure dissipates. We are struggling to develop a long term soil structure and at the same time increase food production.

Intensive farming is necessary to meet our production targets. We focus on quick turnover crops with the highest yield per square foot. We grow over 55 varieties that ensure a consistent, high yield all year long. While we recognize that the BC Ministry of Agriculture estimates that a 5-acre mixed vegetable farm will never cover it's full costs, we are committed towards increasing the financial sustainability of our schoolyard farms through intensive growing practices.

Murphy's Law. A BC wide teacher's job action, theft, the worst wire-worm damage researchers have ever seen, located on a crow fly way, etc. etc. etc. Everything that could go wrong did. Which is good for us because we're learning what we need in the long term to negotiate the ever changing fortunes of a schoolyard farm. While we are still a pilot program, we are learning to understand staff requirements, our soil nutrition, winter farming potential, and how to better integrate into the school community. Yet for all we have learned – there only more to go.

"It's Hard." Farming on public land is hard work. It's physical work to till, tend, and grow; it's emotional as so much is left to weather and unforeseen elements; and this is the first of its kind. We are building community-engaged farms and writing the manual as we go.

Students, parents, teachers, and neighbours volunteer to build raised farm beds.

Farm Operations and Expenses

	2014	2015*	Future 1/2 Acre Farms*
Labour (Farm Management)	$ 42,400	$ 54,320	$ 53,000
Farm Materials	$ 22,721	$ 13,372	$ 15,000
Total Farm Operations	$ 65,121	$ 67,692	$ 68,000

* Projected

Labour

- Project Manager: integrates farm into the schools operations.
- Farm Manager: designs and oversees crop plans, manages volunteers.
- Farmers: Implements crop plans.
- Distribution Coordinator: oversees food sales
- Schoolyard Farm Internship: prepares new farmers for future operations.
- Volunteer sessions—in 2014 over 1,300 volunteer hours were logged.

The significant costs accrued in developing these new Schoolyard Market Gardens, negotiating a new land use on school grounds and ongoing school interactions are not accounted for here. Future labour costs take advantage of economies of scale: one farm manager overseeing multiple sites, with farmers implementing crop plans.

Materials

Gas, small tools, seeds, and amendments form the largest materials costs. In-kind donations reduce cash materials costs and create meaningful methods of engagement with the project. A 1/2 acre of growing space for future farms creates economies of scale for all farm expenses (tools, deliveries, etc.)

Students learn the full cycle of starting a small scale business: from production, marketing and sales, through to celebration. Come join us at the market!

Fresh Roots' Food Sales '13-'15

	2013	2014	2015 (Estimated)	Estimated Full Production
Cafeterias	$ 1,200	$ 2,196	$ 6,000	$ 10,000
Markets	$ 3,755	$ 13,553	$ 8,000	$ 10,000
CSA	$ 3,055	$ 12,651	$ 17,000	$ 20,000
Orders (Restaurants, Community Partners, etc.)	$ 3,000	$ 6,837	$ 9,000	$ 10,000
Total	**$ 11,010**	**$ 35,237**	**$ 40,000**	**$ 50,000**

Food roots the Schoolyard Market Gardens within the community. Volunteers learn how to grow their own—and take some home. Teaching cafeterias show their students how to utilize fresh ingredients to cook delicious foods. Neighbours compare their growing methods with ours. Food sales are a clear way for people to support Schoolyard Market Gardens.

Financial Sustainability

In their third year of operation, our schoolyard farms are not yet sustainable on their own. While volunteers benefit from being outside, learning about growing and supporting healthy food, their time and energy is essential to making this project successful. Yet even with their help, volunteers are not enough—skilled farmers are required to harvest, process, and negotiate the ever changing conditions on the farm. This increases costs, particularly in the city where the cost of living is higher than rural areas where farms are traditionally located.

We are not daunted. For future farms we estimate that with increased use of greenhouse spaces, additional infrastructure, and experience we will be able to grow and sell $65,000 on a single half acre site and through economies of scale, we will be able to reduce per site costs. Through this tactic we believe that each new farm will be financially sustainable.

Procurement and Land Use

When environmental and financial goals sit opposed to one another, the environment loses out. Making the best environmental choice, must be the best financial choice, especially for land practices.

Why we must change is clear: deforestation, industrial farming methods, chemical fertilizers, pesticides and transportation causes 1/3 of anthropogenic greenhouse gasses. Changing to organic and sustainable methods of farming reduces emissions, eutrophication, and can remediate blighted soils. For farmers there must be immediate and clear incentives to make that shift.

Increased demand for sustainably grown food signals that sustainable practices are worth it. As consumers, we vote for sustainability with our dollars. Every purchase of local, sustainable products is another incentive to grow sustainably.

The larger the purchase, the larger the incentive. That's why we work with the Vancouver School Board to increase procurement of local, sustainably grown produce. In addition to more healthy food in schools - shifts like this signal that institutions will only buy sustainably. It trains customers to demand and expect sustainably grown foods and increases the demand for local foods. Procurement that prioritizes sustainably grown products, incentivizes sustainable land uses.

Engage with Us!

SOYL stands for Sustainable Opportunities for Youth Leadership. SOYL's innovative experiential learning model empowers diverse groups of youth to be active participants in building a sustainable food system from production, processing, and sales to education, marketing, and accounting. Through summertime internships and multi-year programming, youth develop leadership skills, confidence to advance their futures, and build resilient and sustainable communities.

Field Trips provide powerful teaching moments in our outdoor classrooms. The Schoolyard Market Gardens present a unique learning venue for youth across the region. Other schools and youth groups are able to explore a variety of topics in the context of the schoolyard farm. Whether this is discovering mustard greens for the first time, exploring invertebrates, composing poetry or simply eating a snack directly where it was grown, these field trips open the door for young people across the city to engage with and re-imagine their food system.

Garden Clubs meet weekly to grow, cook, learn, share and play in the gardens. We help students cultivate food literacy through farm-to-fork workshops, build an ethic of responsibility through leadership of the space and foster community connections, as club members share a unique relationship with the land together. These students become leaders of their food system as advocates and change makers.

Farm Manager Scott Bell helps students learn about the nutritional value of spinach.

Community Engaged Farming

The Schoolyard Market Gardens are also places for hands-on learning, community connections, growing young farmers, and community celebrations. We recognize that if we want future generations to be inclined towards sustainable land use practices and ecological stewardship, a paradigm shift is imperative for youth today. That is what the schoolyard farms offer. In the past 3 years we have piloted a number of activities listed below with .8 FTE (* Indicates Fee for Service)

- Professional Development*: Services educators and youth support workers. 3 annually, 392 educators with opportunities for growth
- Curricular Connections: Engage closely with secondary school classes (Science, Home Economics, etc.) 1,950 students to date
- SOYL 6 week Summer Internship: 15 high-school youth annually
- School Garden Clubs: 40 high-school youth annually
- K-7 Field trips*: 8 annually, 250 youth, with opportunities for growth
- Schoolyard Farm Tours*: 4-8 annually
- Community Harvest Festivals: 2 annually, 800 participants
- Corporate Team Building Opportunities*: 6-12 annually, opportunities for growth
- Food Systems Workshops*: 6-10 annually with opportunities for growth, 300 participants
- Schoolyard Farm Internships: Training 8 university students to date.

Our Schoolyard Market Gardens are neighbourhood food hubs. They are safe, engaging places for neighbours to learn, eat, and celebrate. As we grow, we are excited to see the transformation that takes place, one schoolyard farm at a time.

What We Learned

It Didn't Work Out the Way We Planned It

We began *Growing Neighbours* believing that in two years we would establish two new institutional farms while continuing to strengthen brand new schoolyard farms. We learned a very important lesson - we were wrong. The cycle for developing new farms is long, rarely is there a clear decision maker, and success means involving the entire institutional community.

We learned that despite serious interest, institutional inertia made breaking ground on new farms much slower than anticipated. With the going slow, we began to learn more about these institutions to help us better understand how public institutions make land use decisions. We gathered information about their priorities and decision making structures. As we did so, we realized that we needed to learn more about our own organization: what does our organization believe in? What change do we want to see in the world? What is our role in working towards that change? Who do we want to impact? Taking the time to answer these questions, as well as ongoing market research and customer discovery, helped us realize that our work will be most impactful with schools—even though schools are some of the most complex institutions, with numerous external and internal challenges, long development cycles, and stretched staff. Despite these challenges, we have a new committed Schoolyard Market Garden that we will be building next year, with two other serious prospects for the coming years.

The lessons learned and shared in this case study are instrumental in informing the future path of our organization, as well as the many other community organizations contacting us on an almost weekly basis, asking for advice and consult on how to help make this happen in their community.

We're Seeing Direct Impact

Already we are beginning to experience systems change, both in the school food system, as well as the thousands of students moving through our farm fields annually. The words of a recent David Thompson graduate say it best:

"I was interested in food sustainability before I started volunteering with Fresh Roots, but through my interactions with them, that interest developed into a true passion which has been serving as my key motivation as I pursue my studies in Sustainable Food Systems in the Land and Food Systems Faculty at the University of British Columbia. I've had a chance to learn how to grow and sell food with Fresh Roots. My neighbours and I have increased access to healthy food at the Good Food Markets and I see how I'm making a difference. Going even further, my work with them has me seriously considering a future occupation in urban agriculture. There are so many problems with our current food production system in terms of sustainability that sometimes, it feels too overwhelming just to pick an aspect to start improving on. The market garden reminds me everyday that it's not all hopeless, that we can revolutionize the system to be sustainable, and we will get there through game-changing ideas like this schoolyard farm project, the urban agriculture movement, and I want to be part of creating that solution."

- Winnie Kwan (Daivd Thompson Secondary School, Class of 2014)

Legal Template

Below you'll find some critical pieces of our agreement. This includes suggested language for your contract or suggestions on what you might need to add to your agreement. In any case, this should be the beginning of a conversation with your institution—be sure to leave ample time to address any concerns your institution has.

USE OF LICENCE AREAS

The Licensee shall use the License Areas only for the following purposes:

The establishment and operation of a sustainable neighbourhood garden for the growing of vegetables, produce, herbs, fruits, flowers, other edibles and ornamentals (the "Garden"); as an outdoor learning classroom, for events, harvest celebrations, community volunteer days and similar programs, for on-site sales of produce grown in the Garden; and such other uses as may be expressly approved by the School District in writing (collectively, the "Permitted Uses").

The Licensee shall not use or suffer to permit the use of any part of the License Areas in such a manner as to cause, suffer or permit any annoying noises or offensive odours to emanate from any part of the License Areas in contravention of any applicable provincial or municipal statutes, regulations or bylaws.

IRRIGATION

The School District will provide a supply of water for the Garden without charge, with hose bibs installed at agreed-upon locations on the Lands. The Licensee may build and maintain an irrigation system to the Garden, connecting the license areas to the water system, if needed. The irrigation system may necessitate trenching, tunnelling, and/or replacing sidewalk spaces.

USE OF SCHOOL

The School District will permit the Licensee's contractors to make appropriate use of designated areas within the School, to access the washrooms and to charge electrical tools, provided that criminal record check results satisfactory to the School District have been provided to the School District in accordance with School District policies.

COMMERCIALLY PRODUCTIVE

The Licensee shall operate the Garden as commercial productive fields. Produce grown in the Garden is the property of the Licensee. The Licensee may sell produce grown in the Garden in a temporary harvest tent or sales tent on the License Areas for no more than 10 hours per week, or off-site at any time, with revenues to be retained by the Licensee. The Parties do not intend that sales activity on the License Areas be ongoing, intensive, or of a distinctly commercial nature having regard to the Licensee's not-for-profit mandate, but rather that sales activity be appropriate to the community and school setting of the Garden.

INSURANCE AND INDEMNITY

Speak with your school representative regarding the type of insurance that they'll require of you and the specific wording for indemnification clauses. Ensure that both you and the school board hold indemnity. This protects the schoolboard and helps them mitigate risk.

RENEWALS

Ensure that there is a renewal clause for your contract. This helps ensure that you can renew your contract with ease and lets the institution know that you're in this for the long haul.

BREACH OF CONTRACT

While there probably won't be a case that you or the schoolboard will violate the agreement—you'll want to have some language that protects both of you. If the market garden project should end for some reason, ensure that you will return the licence areas to an acceptable standard. If there is an issue with your use of the licenced areas, ensure that you will receive written notification, with sufficient time to resolve the issue.